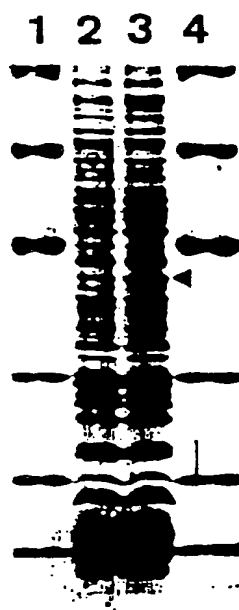


APPROVED			FIG.
BY	CLASS	SUBCLASS	
DRAFTSMAN			

OBER ET AL (703) 413-3000  
 INVENTOR Michel ARTHUR, ET AL.  
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**FIG. 1**

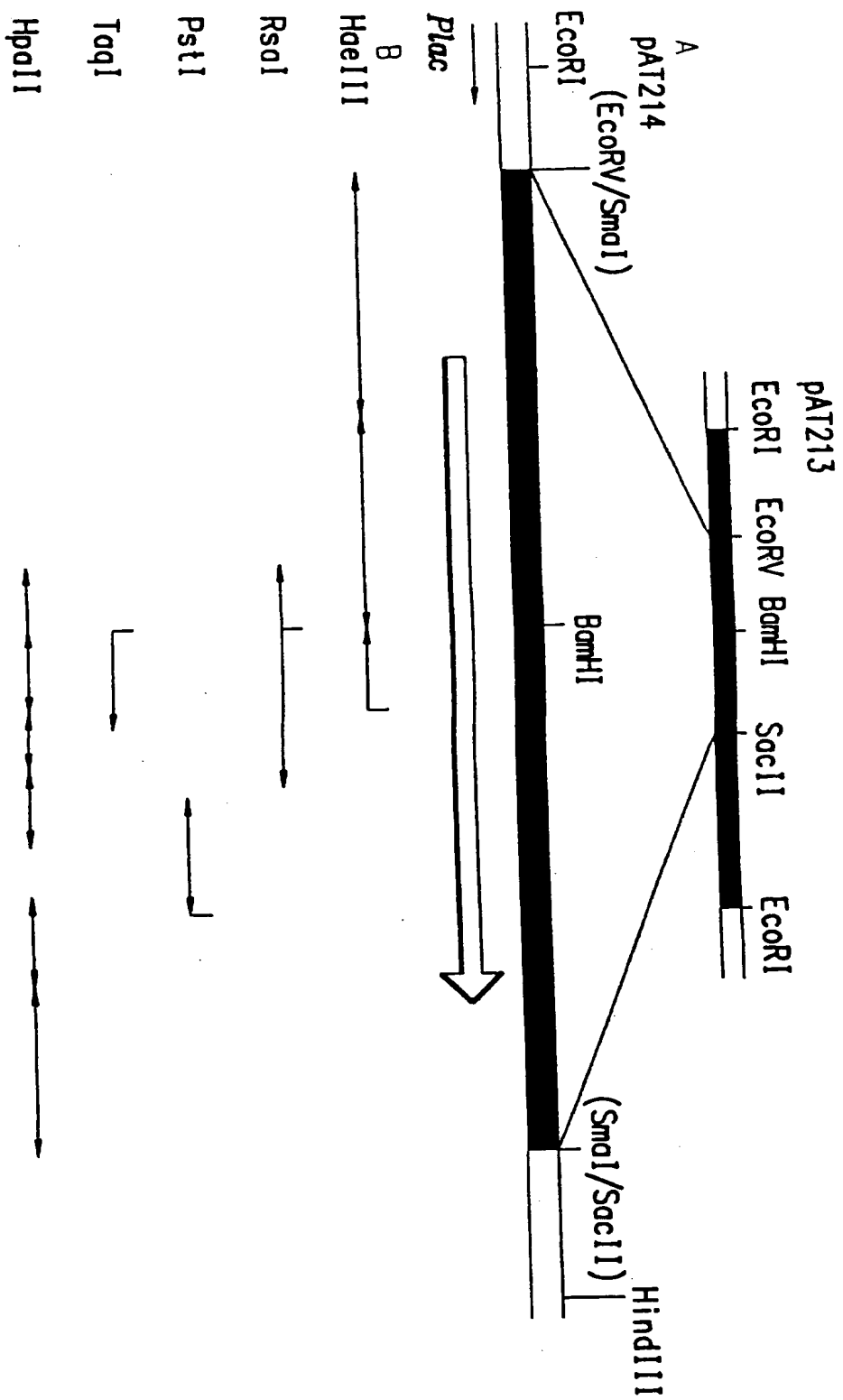


FIG.2

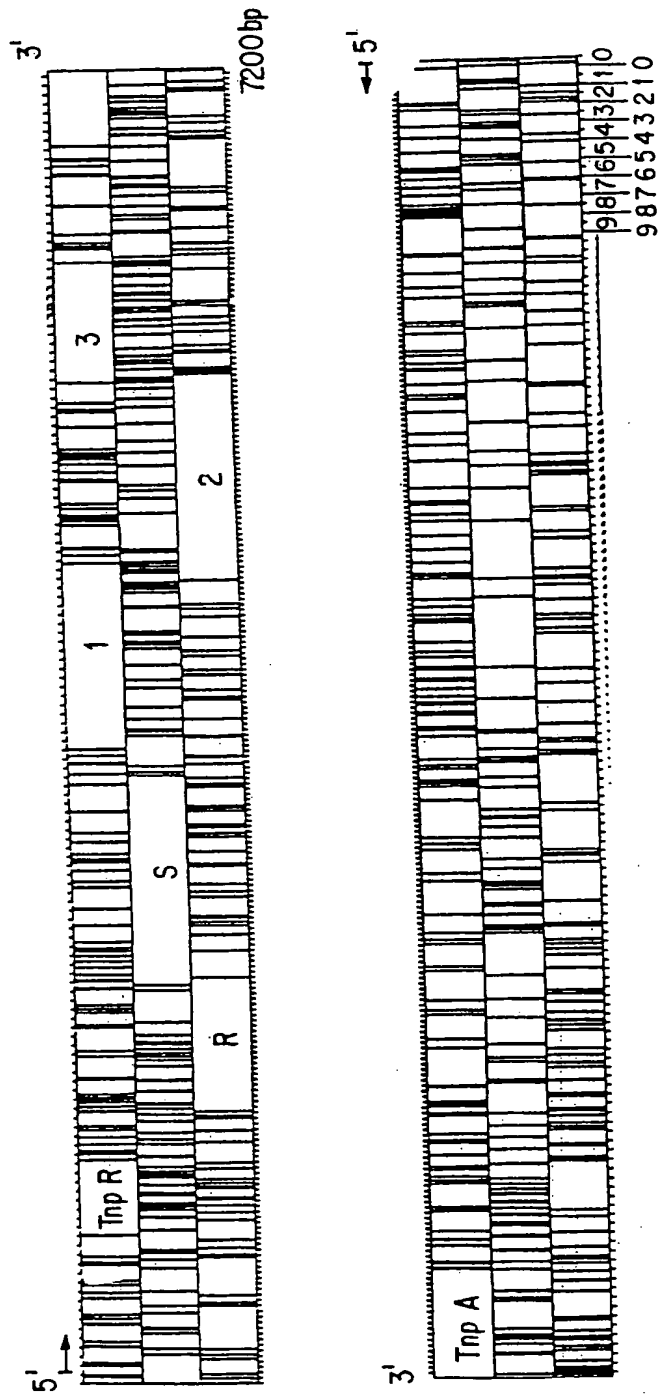
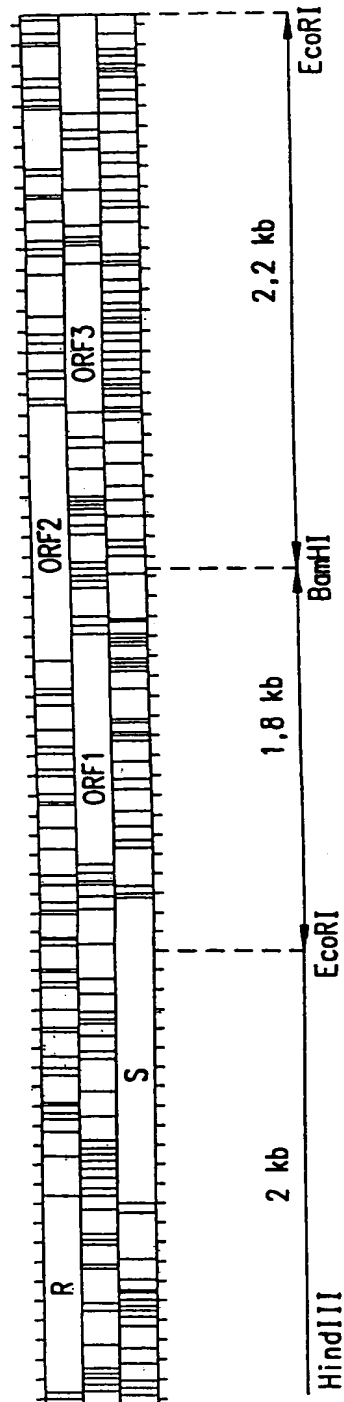


FIG. 3A

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**FIG. 3B**

FIG. 4A

AAGCTTTTCTTTTGGCTCATTGTTAGAGATTTACTAACCGTATTAAATAGCTTCTTTTC  
AGCCATTGCCCTTGETTCCACACCATTCITTCAGGTAGTAGCAGGCAGTATAAT  
TTTGTTTTTCTTAGAAATCTATGCATTCATGCAGTAGATGAATGGCATCACCATTTTC  
CAAAGCTAATTGATGAAGGTACTTAAATGTCATTCGATATTCACICAGGGTAAAGTTAC  
AAAGTCGTATTCACCTTCGAATTTCTTCAATGATCCCAAGTGATTTTCCCTTTGAGG  
ATAATGATCAAGCGAGGATGGACTAACACCAATCTGTTTCGATATATATTGTATGACCGA  
ATCTGGGATGCTTTTGATATGAGTGTATGGCCAACCCGGATACCGAAGAACAGCTAATTG  
AACAGCAATCCTTAACGGTTTCTTCCCTCCTTCGCTTATTAACTATTCTAAATCCCG  
TTTGGAATAAGTGAAGTAGGTCCCGATCCCATTCATCTTCAGGGATTTCATATAAAGC  
CTGTCTCTGTICCGGTGAAGCAATCTCTACCTCTCGCAATTTTCATTCAGTATCATTC  
CATTTCTGTATTTTCAATTTATTAGTTCATTTATATCAATAGAGTGACTCTATTGAT  
ACAAATGTAGTAGACTGATAAAATCATAGTTAAGAGCGTCTCATAGACTTGTCTCAAAA  
ATGAGGTGATATTTGCGGAATTCGGTTATATTCGTGTCAGTTCGACTAACCGAATCC  
TTCAGACAAATTTAGCAGTTGACGAGATCGGAATGGATATTATATAAGAGAAAGTTT  
CAGGAGCAACAAGGATCGCGAGCAACTTCAAAAAGTGTAGACGATTTACAGGAAGATG  
ACATCATTTAIGTTACAGACTTAACTCGAATCACTCGTAGTACACAAGATCTATTGAAAT  
TAATCGATACATACGAGATAAAAGGCAAGTTTAAATCACTAAAGATACATGGCTTG  
ATTTATCAGAAGATAATCCATACAGCCATCTTAAATTAAGTAAAGATACATGGCTTAACC  
AATTAGAGCGAGATCTTATTCGGATGAGACAACGTGAAGGGATTGAATTTGGCTAAGAAAG  
AAGGAAAGTTTAAAGGTGATTAAGGAAGTATCATAAAAATCACGCAGGAATGAATTAAG  
CGGXAAAGCTATATAAGAGAGGAATATGACTGTAAATCAAAATTTGTGAATTAATAAT  
GTATCTAGGGCTTCATTTATACAGGAAATTTATCAGAAAGTGAATAATTAGCCATTCTGTAAT  
CCGCTAATGGGCAATATTTTAAAGGAAGAAAGGAACTATAAAATATTACAGCCCTCCT  
AGCGATGCCGAAAGCCCTTTGATAAAAAAGAAATCATCTTAAGAAATCTTAGTCA  
TTTATTATGTAAATGCTTATAAATTCGGCCCTATAATCTGATAAATTAATTAGGGCAAC

FIG. 4B

TTATGTGAAGGGTGATAACTATGAGCGATAAAATACITATTTGGATGATGAACATGAA  
ATTGCCGATTTGGTTGAATTATACTTAAAAACGAGAAATATACGGTTTTCAAATACTAT  
ACGCCAAAGAGCATTTGGAATGTATAGACAGTCTGAGATTGACCTTGCCATATTGGAC  
ATCATGCTTCCGGCACAGCGGCTTACTATCTGTCAAAAATAAGGGACACACACACC  
TATCCGATTATCATGCTGACCGGGAAGATACAGAGGTAGATAAATTACAGGGTTAACA  
ATCGCGCGGATGATTATATACGAAGCCCTTTCGCCACTGGAGTTAATTGCTCGGGTA  
AAGGCCAGTTGCGCGGATACAAAAAATTCAGTGGAGTAAGGAGCAGAACGAAAAATGTT  
ATCGTCCACTCCGGCTTGTCTATTATGTTAACACCCCATGAGTGTATCTGACGAGAG  
CAGTTATCCCTTACTCCACCGAGTTTCAATACTGCGAATCCTCTGTGAACAACAGGGG  
AATGTGGTTAGCTCCGAGCTGCTATTTTCATGAGATATGGGGCGACGAATATTCAGCAAG  
AGCAACAACACCATCACCGTGCATATCCGGCATTTGCGGAAAAAATGAAACGACCATT  
GATAATCCGAAATATATAAAACGGTATGGGGGTTGGTTATAAAATTGAATAATAAAA  
AAACGACTATTCCAAACTAGAACGAAACATTTACATGTATATCGTTGCAATTGTTGGT  
AGCAATTGTATTCGTGTTGTATATTCGTTCAATGATCCGAGGGAACTTGGGGATTGGAT  
CTTAAGTATTTGGAAAAACAATATGACTTAATCACCCTGGACGCGATGAATTATATCA  
ATATTCATACGGACAATATAGATATCTTTATTTATGTGGCGATTGTCAATTAGTATTCT  
TATTCATGTGCGGTCTGCTTTCAGAAATTCGCAAAATACCTTGACGAGATAAATACCGG  
CATTGATGTACTTATTCAGAACGAGATAAACAAATTGAGCTTTCGCGGAAATGGATGT  
TATGGAAACAAGCTCAACACATTAACACGGACTTCGGAAGCGAGAGCAGGATGCAAA  
GCTGGCCGAACAAGAAAAATGACGTTGTTATGTACTTGGCGCACGATATAAACGCCC  
CCTTACATCCATTATCGGTTATTTGAGCCCTGCTTGACGAGGCTCCAGACATGCCGGTAGA  
TCAAAAGGCAAGTATGTGCATATCACGTTGGACAAAGCGTATCGACTCGAACAGCTAAT  
CGACGAGTTTGTGAGATTACACGGTATAACCTACAACGATTAACGCTAACAAAAACGCA  
CATAGACCTATACATATGCTGGTGCAGATGACCGATGAATTTATCCTCAGCTTTCGCG  
ACATGGAAACAGCGGTTATTCACGCCCCCGAGGATCTGACCGTGTCCGGCGACCCCTGA

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FIG. 4C

TAAACTCGGAGAGTCTTTAACAAACATTTTGAAAACGCCGCTGCATACAGTGAGGATAA  
CAGCATCATTGACATTACCGGGGCTCTCCGGGATGTGGTGTCAATCGAATTCAGGAA  
CACTGGAGGATCCCAAAGATAGCTAGCTAGCTATTTGAAAGTTCATAGGCTGGA  
CAATTCCTCGTTCTCCGATACGGGTGGCGGGGACTTGGATTGGCGATTGCAAAAGAAAT  
TATTGTTTCAGCATGGAGGGCAGATTACGGGGAAGCTATGATAACTATACGACGTTTAG  
GGTAGAGCTTCCAGCGATGCCAGACTTGGTTGATAAAGGAGGTCCCTAAGAGATGTATAT  
AATTTTTCAGGAAATCTCAAGGTTATCTTTACTTTTCTTAGGAAATTAACCAATTTAAT  
ATTAGAAACGGCTCGTTCTTACACGGTAGACTTAATACCGTAGAAGAGCCGTTTTCG  
TTCTTCAGAGAAAGATTIGACAAGATTACCATTGGCATCCCGTTTATTTGGTGCCTTT  
CACAGAAAGGTTGGTCTTAATTATGATAACATCGGCAATTACIGTTTATGGATGTGAGC  
AGGATGAGGCAGATGCATTCCATGCTCTTTCGCTCGCTTGGCGTTATGGCAACGATAA  
TTAACGCCAACGTGTCGGAATCCACGCCAATCCGCGCTTTCATCAATCAATGTATCAGTG  
TGGGACATAAATCAGAGATTTCGCGCTCTATTCTTTCGCGCTGAGAGAGCCGGTGTGA  
AATATATTTCTACCCGAGCATCGGCTGCAATCATATAGATACAACTGCTGCTAAGAGAA  
TGGGCATCACTGTCGACAAATGTGGCGTACTCGCCGGATAGCGTIGCCGATTATACTATGA  
TGCTAATTTCTTATGGCAGTACGCAACGTAAATCGATTGTGCGCTCTGTGGAATAACATG  
ATTCAGGTTGGACAGCGACCGTGGCAAGGTACTCAGCGACATGACAGTTGGTGTGGTGG  
GAACGGCCAGATAGGCAAGCGGTTATTGAGCGGCTGCGAGGATTGGATGTAAAGTGT  
TGGCTTATAGTCGACGCCGAGGTATAGAGGTAACTATGTACCGTTTGATGAGTGTCTGC  
AAAAATAGCGATATCGTTACGCTTCAATGTGCGGCTCAATACGGATACGCATATATTATCA  
GCCACGAACAAATACAGAGAAATGAAGCAAGGAGCATTTCTTATCAATACTGGCGCGGTC  
CACTTGTAGATACCTATGAGTTGGTTAAGCATTAGAAACGGGAACCTGGCGGGTGGCCG  
CATTGGATGTATTGGAAGGAGGAGAGATTTCCTACTCTGATTGCACCCCAAAACCAA  
TTGATAATCAATTTTACTTAACCTTCAAGAAATGCCCTAACGTGATAATCACACCGCAT  
CGGCCCTATTATACCGAGCAAGCGTTGCGTGATACCGTTGAAAACCAATTAAACACTGT

FIG. 4D

TGGATTTTGAAAGGAGACAGGAGCATGAATAGAAATAAAGTTGCAATACTGTITGGGGGT  
TGCTCAGAGGAGCATGACGTATCGGTAAAACTGCAATAGAGATAGCCGCTAACATTAAT  
AAAGAAATACGAGCCGTATACATIGGAATACGAATCTGGTGTATGGAAATGTGC  
GAAAAACCTTGCGCGGAATGGGAAACGACAAATGCTATTCAGCTGTACTCTCGCCGGAT  
AAAAAATGCACGGATTACTTGTAAAGAGAACCATGAATATGAAATCAACCATGTIGAT  
GTAGCATTTTCAGCTTTGTCATGGCAAGTCAGGTGAAGATGGATCCATACAGGCTCTGTTT  
GAATGTCCGGTATCCCTTTTGTAGGCTGCGAATATTCAGGCTCAGCAATTTGTATGGAC  
AATCGTTGACATACATCGTTGCGAAAAATGCTGGGATAGCTACTCCCGCTTTTGGGTT  
ATTAATAAGATGATAGGCCGGTGGCAGCTACGTTTACCTATCCGTTTGTAGGCCG  
GCGCGTTCAGGCTCATCCCTTCGGTGTGAAAGTCAATAGCGCGGACGAATGGACTAC  
GCAATTGAATCGGCAGACAAATATGACAGCAAAATCTTAATTGAGCAGGCTGTTCGGGC  
TGTGAGGTCGGTTGTGCGGTATGGGAACAGTGCCGCTTAGTTGTTGGCAGGTGGAC  
CAATCAGGCTGCAGTACGGAATCTTTCGTATTCATCAGGAAGTCGAGCCGGAAGGCT  
TCTGAAACGCAGTTATAACCGTTCCCGCAGACCTTTCAGCAGAGGCTAGCCGAGGATA  
CAGGAACGCGCAAAATAATAAGCGCTCGGCTGTAGAGGCTAGCCCGTGTGGAT  
ATGTTTTCACAGATAACGCGCGCATTTGTAACGAGTCAATACTCTGCCCGGTTTC  
ACGTCATACAGTCGTTATCCCGTATGATGGCCGCTGCAGGTATGCACTTCCCGAAGT  
ATTGACCGCTTGATCGTATTAGCGTTAAGGGGTGATAAGCATGGAAATAGGATTTACTT  
TTTGTAGATGAATAGTACACGGTGTTCGTTGGACGCTAATATGCCACTTGGGATTAAT  
TCACCGGAAACCGGTTGACGGTTATGAAGTAAATCGCATTTGTAGGGACATACGAGTTGG  
CTGAATCGCTTTGAAGGCAAGAACTGGCTGTACCCAGGGTACGGATGCTTCTAT  
GGGACGGTTACCGTCCTAAGCGTGTAACTGTTTATGCAATGGGCTGCACAGCCGG  
AAAAATACCTGACAAAGGAAGTTATATCCCAATATGACCGAAGTGAAGATTTCAA  
AAGGATACGTGGCTTCAAAATCAAGCCATAGCCGCGGACGTGCAATGATCTTACGCTT  
ATCGATTAGACACGGGTGAGCTTGTAACCAATGGGAGCCGATTTGATTTTATGGATGAC



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FIG. 4E

GCTCTCATGCGGCAAAATGGAAATATCATGCAATGAAGCGCAAAATCGCAGACGTTTGC  
GCTCCATCATGGAAACAGTGGGTTTGAGGCATATAGCCTCGAATGGTGGCACAATGTAT  
TAAGAGACGAACCATACCCCAATAGCTATTTTGATTTCCCGTTAATAAATTTTAAACC  
GTTGCACGGACAACATATATAGTAGTAGTCTTTTCGGCAGGAACCCGACGTATGTAACTG  
GTTCTTAGGGAATTTATATATAGTAGTAGTCTTTGAAGATGTAAAGGCAGAGCGATATTC  
GGTCATTATCTGCGTGCCTGCGCAAGATAGCCTGATATAAGACTGATCGCATAGAGG  
GGTGGTATTTTCACACCGCCCATTTGTCAACAGGCAGTTCAGCCTCGTTAAATTCAGCATGG  
GTATCACCTTATGAAAATTCATCTACATTTGGTGATATAAGTAAATCCAGTAGGGCGAAATA  
ATTGACTGTAAATTTACGGGGCAAAACGGCACAACTCTCAACAGAGATTGTGCCGTTTAAAGG  
GGAAGATTCTAGAAATATTTTCATACCTCCAACTATATAGTTAAGGAGGAGACTGAAAAATG  
AAGAAGTTGTTTTTTTATTTGTTATTTCTTAAATATACTTAGGTTATGACTACGTT  
AATGAAGCAGCTGTTTCTCAGGAAAAGTCGAATTTCAAAATTAATGATCAAAATCCCAGAA  
GAACATTTAGAAATAGTGGGACTTCTGAAAATACCCAGAGGAAACAAATACAGAGAGAA  
CAGGTTTATCAAGGAAATCTGCTATTAATCAATAGTAAATATCCTGTTCCCAAGAGAGTG  
TGAAGTCAGATATCGTGAATTTATCTAAACATGACCGAATTAATAATGGATACGGGTTGC  
TTGATAGTAATATTTATATGTCAAAAGAAATAGCACCAAAATTTTCAGAGATGGTCAATG  
ATGCTGTAAAGGGTGGCGTTAGTCAATTTATTAATAGTGGCTATCGAGACTTTGATG  
AGCAAAAGTGTGCTTTACCAAGAAATGGGGCTGAGTATGCTTACCAAGCAGGTTATAGTG  
AGCATAAATTCAGGTTTATCAGTATGATGATGATGATGATGATGATGATGATGATGATG  
CTGAAGGAAAGTGGATAGAGAAATGCTTGGAAATACGGGTTTCATTTACGTTATCCAG  
AGGACAAACAGAGTTAACAGGAATTC

FIG. 5A

LysLeuPhePheLeuLeuIleCys\*\*ArgPheThrAsnArgIleLys\*\*LeuLeuPhe  
SerPheSerPheCysSerPheValArgAspLeuLeuThrValLeuAsnSerPhePheSer  
AlaPheLeuPheAlaHisLeuLeuGluIleTyr\*\*ProTyr\*\*IleAlaSerPheGln  
AAGCTTTTCTTTTGCTCATTGTTAGAGATTACTAACCGTATTAAATAGCTTCTTTTC  
SerHisCysProCysPheProHisHisSerPheLysCysSerAspSerArgGlnTyrAsn  
AlaIleAlaLeuAlaSerHisThrIleLeuSerSerValIleAlaGlySerIleIle  
ProLeuProLeuLeuProThrProPhePheGlnVal\*\*\*\*\*GlnAlaVal\*\*Phe  
AGCCATTGCCCTTGCTTCCCACACCATTTCTTCAAGTGTAGTAGCAGGCAGTATAAT  
PheValPheSer\*\*LysIleTyrAlaPheMetGln\*\*MetAsnGlyIleThrIlePhe  
LeuPhePheLeuArgLysSerMetHisSerCysSerArg\*\*MetAlaSerProPheSer  
CysPhePheLeuGluAsnLeuCysIleHisAlaValAspGluTrpHisHisPhePro  
TTTGTTTTTCTTAGAAAATCTATGCATTTCATGCAGTAGATGAATGGCATCACCATTTC

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```
GlnSer**LeuMetLysValLeuLysCysHisSerIlePheThrGlnGlyLysSerTyr
LysAlaAsn*****ArgTyrLeuAsnValIleArgTyrSerLeuArgValLysValThr
LysLeuIleAspGluGlyThr***MetSerPheAspIleHisSerGly***LysLeuGln
CAAAGCTAATTGATGAAGGTACTTAAATGTCATTTCGATATTCACCTCAGGGTAAAGTTAC
. . . 200 . . .
LysValValPheThrSerAsnPhePheGlnMetIleProLysCysIlePheProLeuArg
LysSerTyrSerLeuArgIleSerPheLys***SerGlnSerValPheSerLeu**Gly
SerArgIleHisPheGluPheLeuSerAsnAspProLysValTyrPheProPheGluAsp
AAAGTCGTATTCACCTTCGAATTTCTTTCAAATGATCCCAAAGTGATTTTCCCTTTGAGG
. . . . . 300
```

FIG. 5B

FIG. 5C

IleMetIleLysArgGlyTyrThrAsnThrAsnLeuPheArgTyrIleLeuTyrAspArg  
\*\*\*\*\*SerSerGluAspGlyLeuThrProIleCysPheAspIleTyrCysMetThrGlu  
AsnAspGlnAlaArgMetAsp\*\*\*HisGlnSerValSerIleTyrIleVal\*\*\*ProAsn  
ATAATGATCAAGCGAGGATGGACTAACACCAATCTGTTTCGATATATATTGTATGACCGA  
IleTyrAspAlaPheAspMetSerValTrpProThrGlyIleProLysAsnSer\*\*\*Leu  
SerGlyMetLeuLeuIle\*\*\*ValTyrGlyGlnProGlyTyrArgArgThrAlaAsn\*\*\*  
LeuGlyCysPhe\*\*\*TyrGluCysMetAlaAsnArgAspThrGluGluGlnLeuIleGlu  
ATCTGGGATGCTTTTGATATGAGTGATGGCCAAACCGGGATACCGAAGAACAGCTAATTG  
AsnSerLysSer\*\*\*ThrValPhePheProProSerLeuIleAsnTyrPhe\*\*\*IlePro  
ThrAlaAsnProLysArgPheSerSerLeuLeuArgLeuLeuThrIleSerLysSerArg  
GlnGlnIleLeuAsnGlyPheLeuProSerPheAlaTyr\*\*\*LeuPheLeuAsnProVal  
AACAGCAAATCCTAAACGGTTTTCTTCCCTCCTTCGCTTATTAATACTATTCTAAATCCCG

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PheGlyLysSerGluValGlyProGlnTyrProPheIlePheArgAspLeuHisLysSer  
LeuGluLysValLys\*\*ValProSerIleHisSerSerSerGlyIleCysIleLysAla  
TrpLysLys\*\*SerArgSerProValSerIleHisLeuGlnGlyPheAla\*\*LysPro  
TTTGGAAAAGTAGGAGTCCAGTATCCATTTCATCTTCAGGGATTTCATATAAAGC  
500  
LeuSerLeuPheArgCysLysGlnPheSerThrSerArgAsnPheHisSerValSerPhe  
CysLeuCysSerGlyValSerAsnSerLeuProLeuAlaIlePheIleGlnTyrHisSer  
ValSerValProVal\*\*AlaIleLeuTyrLeuSerGlnPheSerPheSerIleIlePro  
CTGTCTCTGTTCCGGGTAAAGCAATTCTCTACCTCTCGCAATTTTCATTCAGTATCATTC  
600

FIG. 5D

**FIG. 5E**

HisPheCysIlePheAsnLeuValGlnLeuTyrIleAsnArgValTyrSerIleAsp  
 IleSerValPheSerIleTyr\*\*PheAsnTyrIleSerIleGluCysThrLeuLeuIle  
 PheLeuTyrPheGlnPheIleSerSerIleIleTyrGln\*\*SerValLeuTyr\*\*Tyr  
 CATTCTGTATTTTCAATTATTAGTTCAATTATATATCAATAGAGTGTACTCTATTGAT  
 . . . . .  
 ThrAsnValValAsp\*\*\*\*\*AsnHisSer\*\*GluArgLeuIleArgLeuValSerLys  
 GlnMet\*\*\*\*\*ThrAspLysIleIleValLysSerValSer\*\*AspLeuSerGlnLys  
 LysCysSerArgLeuIleLysSer\*\*LeuArgAlaSerHisLysThrCysLeuLysAsn  
 ACAAATGTAGTAGACTGATAAAATCATAGTTAAGAGCGTCTCATAGACTTGTCTCAAAA  
 . . . . . 700 .  
 MetArg\*\*\*TyrPheAlaGluAsnArgLeuTyrSerCysGlnPheAsp\*\*\*ProGluSer  
 \*\*GlyAspIleLeuArgLysIleGlyTyrIleArgValSerSerThrAsnGlnAsnPro  
 GluValIlePheCysGlyLysSerValIlePheValSerValArgLeuThrArgIleLeu  
 ATGAGGTGATATTTGCGGAAATCGGTTATATTCGTGTCAGTTCGACTAACCAGAAATCC  
 . . . . .

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PheLysThrIleSerAlaValGluArgAspArgAsnGlyTyrTyrIleLysArgLysPhe  
SerArgGlnPheGlnGlnLeuAsnGluIleGlyMetAspIleIle\*\*\*ArgGluSerPhe  
GlnAspAsnPheSerSer\*\*\*ThrArgSerGluTrpIleLeuTyrLysGluLysValSer  
TTCAAGACAATTTCAGCAGTTGAACGAGATCGGAATGGATATTATATAAGAGAAAGTTT  
800  
GlnGluGlnGlnArgIleAlaSerAsnPheLysLysCys\*\*\*ThrIleTyrArgLysMet  
ArgSerAsnLysGlySerArgAlaThrSerLysSerValArgArgPheThrGlyArg\*\*\*  
GlyAlaThrLysAspArgGluGlnLeuGlnLysValLeuAspLeuGlnGluAspAsp  
CAGGAGCAACAAGGATCGCGAGCAACTTCAAAAAGTGTTAGACGATTACAGGAAGATG  
900

FIG. 5F

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FIG. 5G

ThrSerPheMetLeuGlnThr\*\*LeuGluSerLeuValValHisLysIleTyrLeuAsn  
HisHisLeuCysTyrArgLeuAsnSerAsnHisSer\*\*TyrThrArgSerIle\*\*Ile  
IleIleTyrValThrAspLeuThrArgIleThrArgSerThrGlnAspLeuPheGluLeu  
ACATCATTATGTTACAGACTTAACTCGAATCACTCGTAGTACACAAGATCTATTGGAAT  
\*\*\*SerIleThrTyrGluIleLysArgGlnVal\*\*AsnHis\*\*\*LysIleHisGlyLeu  
AsnArg\*\*HisThrArg\*\*LysGlyLysPheLysIleThrLysArgTyrMetAla\*\*  
IleAspAsnIleArgAspLysLysAlaSerLeuLysSerLeuLysAspThrTrpLeuAsp  
TAATCGATAACATACGAGATAAAAGGCAAGTTTAAATCACTAAAGATACATGGCTTG  
IleTyrGlnLysIleIleHisThrAlaAsnSer\*\*LeuLeu\*\*TrpLeuValLeuThr  
PheIleArgArg\*\*\*SerIleGlnProIleLeuAsnTyrCysAsnGlyTrpCys\*\*\*Pro  
LeuSerGluAspAsnProTyrSerGlnPheLeuIleThrValMetAlaGlyValAsnGln  
ATTATCAGAAGATAATCCATACAGCCAATTCTTAATTACTGTAATGGCTGGTGTAAACC



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Asn\*\*\*SerGluIleLeuPheGly\*\*\*AspAsnValLysGlyLeuAsnTrpLeuArgLys  
IleArgAlaArgSerTyrSerAspGluThr\*\*\*ArgAsp\*\*\*IleGly\*\*\*GluArg  
LeuGluArgAspLeuIleArgMetArgGlnArgGluGlyIleGluLeuAlaLysLysGlu  
AATTAGAGCGAGATCTTATTCCGATGAGACAACGTGAAGGGATTGAATTGGCTAAGAAAG  
1100  
LysGluSerLeuLysValAsp\*\*\*ArgSerIleIleLysIleThrGlnGlu\*\*\*IleMet  
ArgLysVal\*\*\*ArgSerIleLysGluValSer\*\*\*LysSerArgArgAsnGluLeuCys  
GlyLysPheLysGlyArgLeuLysLysTyrHisLysAsnHisAlaGlyMetAsnTyrAla  
AAGGAAAGTTTAAAGGTCGATTAAAGAAGTATCATAAAAATCACGCAGGAATGAATTATG  
1200

FIG. 5H

FIG. 5I

ArgArgLysLeuTyrLysGluGlyAsnMetThrValAsnGlnIleCysGluIleThrAsn  
 GlyGluSerTyrIleLysLysGluIle\*\*\*Leu\*\*\*IleLysPheValLysLeuLeuMet  
 AlaLysAlaIle\*\*\*ArgArgLysTyrAspCysLysSerAsnLeu\*\*\*AsnTyr\*\*\*Cys  
 CGGXXAAAGCTATATAAGAGGAAATATGACTGTAAATCAAAATTTGTGAAATTACTAAT  
 ValSerArgAlaSerLeuTyrArgLysLeuSerGluValAsnAsn\*\*\*ProPheCysIle  
 TyrLeuGlyLeuHisTyrThrGlyAsnTyrGlnLys\*\*\*IleIleSerHisSerValPhe  
 Ile\*\*\*GlyPheIleIleGlnGluIleIleArgSerGlu\*\*\*LeuAlaIleLeuTyrSer  
 GTATCTAGGCTTCATTATACAGGAAATTATCAGAAAGTGAATAATTAGCCATTCTGTATT  
 . . . . 1300 .  
 ProLeuMetGlyAsnIlePheLysGluGluLysGluThrIleLysTyr\*\*\*GlnProPro  
 Arg\*\*\*TrpAlaIlePheLeuLysLysLysArgLysLeu\*\*\*AsnIleAsnSerLeuLeu  
 AlaAsnGlyGlnTyrPhe\*\*\*ArgArgLysGlyAsnTyrLysIleLeuThrAlaSer\*\*\*  
 CCGCTAATGGGCAATATTTTAAAGAGAAAGGAACTATAAAATATTAAACAGCCTCCT  
 . . . . .

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SerAspAlaGluLysPropheAspLysLysArgIleIleIleLeuArgAsnSer\*\*\*Ser  
AlaMetProLysSerProLeuIleLysLysGluSerSerSer\*\*\*GluIleLeuSerHis  
ArgCysArgLysAlaLeu\*\*\*\*LysLysAsnHisHisLeuLysLysPheLeuValIle  
AGCGATGCCGAAAGCCCTTTGATAAAAAAGAAATCATCATCTTAAGAAATTCTTAGTCA  
1400  
PheIleMet\*\*\*MetLeuIleAsnSerAlaLeu\*\*\*SerAspLysLeuLeuArgAlaAsn  
LeuLeuCysLysCysLeu\*\*\*IleArgProTyrAsnLeuIleAsnTyr\*\*\*GlyGlnThr  
TyrTyrValAsnAlaTyrLysPheGlyProIleIle\*\*\*\*\*IleIleLysGlyLysLeu  
TTTATTATGTAAATGCTTATAAATTCGGCCCTATAATCTGATAATTATTAAAGGGCAAAC  
1500

FIG. 5J

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LeuCysGluArgValIleThrMetSerAspLysIleLeuIleValAspAspGluHisGlu  
TyrValLysGly\*\*\*\*\*Leu\*\*\*AlaIleLysTyrLeuLeuTrpMetMetAsnMetLys  
Met\*\*\*LysGlyAspAsnTyrGluArg\*\*\*AsnThrTyrCysGly\*\*\*\*\*Thr\*\*\*Asn  
TTATGTGAAAGGGTGATAACTATGAGCGGATAAAATACTTATTGTGGATGATGAACATGAA  
IleAlaAspLeuValGluLeuTyrLeuLysAsnGluAsnTyrThrValPheLysTyrTyr  
LeuProIleTrpLeuAsnTyrThr\*\*\*LysThrArgIleIleArgPheSerAsnThrIle  
CysArgPheGly\*\*\*IleIleLeuLysLysArgGluLeuTyrGlyPheGlnIleLeuTyr  
ATTGCCGATTGTGGTTGAATTATACTTAAAAACGAGAATTATACGGTTTTCAAATACTAT  
1600  
ThrAlaLysGluAlaLeuGluCysIleAspLysSerGluIleAspLeuAlaIleLeuAsp  
ProProLysLysHisTrpAsnVal\*\*\*ThrSerLeuArgLeuThrLeuProTyrTrpThr  
ArgGlnArgSerIleGlyMetTyrArgGlnVal\*\*\*Asp\*\*\*ProCysHisIleGlyHis  
ACCGCCAAAGAGCATTTGGAATGTATAGACAAGTCIGAGATTGACCTTGCCATATTGGAC

FIG. 5K

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IleMetLeuProGlyThrSerGlyLeuThrIleCysGlnLysIleArgAspLysHisThr  
SerCysPheProAlaGlnAlaAlaLeuLeuSerValLysLys\*\*GlyThrSerThrPro  
HisAlaSerArgHisLysArgProTyrTyrLeuSerLysAsnLysGlyGlnAlaHisLeu  
ATCATGCTTCCCGGCACAGCGGCCCTTACTATCTGTCAAAAAATAAGGACACACACC  
1700  
TyrProIleIleMetLeuThrGlyLysAspThrGluValAspLysIleThrGlyLeuThr  
IleArgLeuSerCys\*\*ProGlyLysIleGlnArg\*\*IleLysLeuGlnGly\*\*Gln  
SerAspTyrHisAlaAspArgGluArgTyrArgGlyArg\*\*AsnTyrArgValAsnAsn  
TATCCGATTATCATGCTGACCGGGAAGATACAGAGGTAGATAAAATTACAGGGTTAACA  
1800

FIG. 5L

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IleGlyAlaAspTyrIleThrLysProPheArgProLeuGluLeuIleAlaArgVal  
 SerAlaArgMetIleIle\*\*ArgSerProPheAlaHisTrpSer\*\*\*LeuLeuGly\*\*\*  
 ArgArgGly\*\*\*LeuTyrAsnGluAlaLeuSerProThrGlyValAsnCysSerGlyLys  
 ATCGCGCGGATGATTATATAACGAAGCCCTTTCGCCCCACTGGAGTTAATTGCTCGGGTA  
 . . . . .  
 LysAlaGlnLeuArgArgTyrLysLysPheSerGlyValLysGluGlnAsnGluAsnVal  
 ArgProSerCysAlaAspThrLysAsnSerValGlu\*\*ArgSerArgThrLysMetLeu  
 GlyProValAlaProIleGlnLysIleGlnTrpSerLysGlyAlaGluArgLysCysTyr  
 AAGGCCCAGTTGCGCGGATACAAAAATTTCAGTGGAGTAAAGGAGCAGACGAAAAATGTT  
 . . . . . 1900 . . .  
 IleValHisSerGlyLeuValIleAsnValAsnThrHisGluCysTyrLeuAsnGluLys  
 SerSerThrProAlaLeuSerLeuMetLeuThrProMetSerValIle\*\*ThrArgSer  
 ArgProLeuArgProCysHis\*\*Cys\*\*\*HisPro\*\*\*ValLeuSerGluArgGluAla  
 ATCGTCCACTCCGGCCTTGTCATTAATGTTAACACCCCATGAGTGTATCTGAACGAGAAG  
 . . . . .

FIG. 5M

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GlnLeuSerLeuThrProThrGluPheSerIleLeuArgIleLeuCysGluAsnLysGly  
SerTyrProLeuLeuProProSerPheGlnTyrCysGluSerSerValLysThrArgGly  
ValIleProTyrSerHisArgValPheAsnThrAlaAsnProLeu\*\*LysGlnGlyGlu  
CAGTTATCCCTTACTCCACCGAGTTTCAATACTGCGAATCCTCTGTGAAACAAGGGG  
2000  
AsnValValSerSerGluLeuLeuPheHisGluIleTrpGlyAspGluTyrPheSerLys  
MetTrpLeuAlaProSerCysTyrPheMetArgTyrGlyAlaThrAsnIleSerAlaArg  
CysGly\*\*LeuArgAlaAlaIleSer\*\*AspMetGlyArgArgIlePheGlnGlnGlu  
AATGTGGTTAGCTCCGAGCTGCTATTTTCATGAGATATGGGGCAGCAATATTTTCAGCAAG  
2100

FIG. 5N

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SerAsnAsnThrIleThrValHisIleArgHisLeuArgGluLysMetAsnAspThrIle  
AlaThrThrProSerProCysIleSerGlyIleCysAlaLysLys\*\*\*ThrThrProLeu  
GlnGlnHisHisArgAlaTyrProAlaPheAlaArgLysAsnGluArgHisHis\*\*\*  
AGCAACACACCATCACCGTGCATATCCGGCATTTGCGCGGAAAAAATGAACGACACCATT  
. . . . .  
AspAsnProLysTyrIleLysThrValTrpGlyValGlyTyrLysIleGluLys\*\*\*Lys  
IleIleArgAsnIle\*\*\*LysArgTyrGlyGlyLeuValIleLysLeuLysAsnLysLys  
\*\*\*SerGluIleTyrLysAsnGlyMetGlyGlyTrpLeu\*\*\*Asn\*\*\*LysIleLysLys  
GATAATCCGAAATATATAAAACGGTATGGGGGTTGGTTATAAAATTGAAAAATAAAAA  
. . . . . 2200 .  
LysArgLeuPheGlnThrArgThrLysThrLeuHisValTyrArgCysAsnCysCysGly  
AsnAspTyrSerLysLeuGluArgLysLeuTyrMetTyrIleValAlaIleValValVal  
ThrThrIleProAsn\*\*\*AsnGluAsnPheThrCysIleSerLeuGlnLeuLeuTrp\*\*\*  
AAACGACTATCCAAACTAGAACGAAACCTTTACATGTATATCGTTGCAATTGTTGTGGT  
. . . . .

FIG. 50



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SerAsnCysIleArgValValTyrSerPheAsnAspProArgGluThrTrpGlyLeuAsp  
AlaIleValPheValLeuTyrIleArgSerMetIleArgGlyLysLeuGlyAspTrpIle  
GlnLeuTyrSerCysCysIlePheValGln\*\*SerGluGlyAsnLeuGlyIleGlySer  
AGCAATTGTTGTTGTATATTTCGTTCAATGATCCGAGGGAACTTGGGGATTGGAT  
2300  
LeuLysTyrPheGlyLysGlnIle\*\*LeuLysSerProGlyArgAspGluIleIleSer  
LeuSerIleLeuGluAsnLysTyrAspLeuAsnHisLeuAspAlaMetLysLeuTyrGln  
\*\*\*ValPheTrpLysThrAsnMetThr\*\*IleThrTrpThrArg\*\*\*AsnTyrIleAsn  
CTTAAGTATTTGGAAAACAAATATGACTTAAATCACCTGGACCGGATGAAATTATATCA  
2400

FIG. 5P

FIG. 5Q

IlePheHisThrGluGlnTyrArgTyrLeuTyrLeuCysGlyAspCysHis\*\*TyrSer  
TyrSerIleArgAsnAsnIleAspIlePheIleTyrValAlaIleValIleSerIleLeu  
IleProTyrGlyThrIle\*\*IleSerLeuPheMetTrpArgLeuSerLeuValPheLeu  
ATATTCCATACCGAACAAATATAGATATCTTTATTATGTGGCGATTGTCATTAGTATTCT  
.  
TyrSerMetSerArgHisAlaPheLysIleArgLysIleLeu\*\*ArgAspLysTyrArg  
IleLeuCysArgValMetLeuSerLysPheAlaLysTyrPheAspGluIleAsnThrGly  
PheTyrValAlaSerCysPheGlnAsnSerGlnAsnThrLeuThrArg\*\*IleProAla  
TATTCTATGTCGCGTCATGCTTTCAAAATTCCGCAAAATACCTTTGACGAGATAAATACCGG  
.  
His\*\*CysThrTyrSerGluArgArg\*\*ThrAsn\*\*AlaPheCysGlyAsnGlyCys  
IleAspValLeuIleGlnAsnGluAspLysGlnIleGluLeuSerAlaGluMetAspVal  
LeuMetTyrLeuPheArgThrLysIleAsnLysLeuSerPheLeuArgLysTrpMetLeu  
CATTGATGTACTTATTCAGAACGAGATAAACAAATTGAGCTTTCTGCGGAAATGGATGT  
.

2500

TyrGlyThrLysAlaGlnHisIleLysThrAspSerGlyLysAlaArgAlaGlyCysLys  
MetGluGlnLysLeuAsnThrLeuLysArgThrLeuGluLysArgGluGlnAspAlaLys  
TrpAsnLysSerSerThrHis\*\*AsnGlyLeuTrpLysSerGluSerArgMetGlnSer  
TATGGAAACAAAGCTCAACACATTAAACGGACTCTGGAAAAGCGAGCAGGATGCAAA  
2600  
AlaGlyArgThrLysLysLys\*\*ArgCysTyrValLeuGlyAlaArgTyr\*\*AsnAla  
LeuAlaGluGlnArgLysAsnAspValValMetTyrLeuAlaHisAspIleLysThrPro  
TrpProAsnLysGluLysMetThrLeuLeuCysThrTrpArgThrIleLeuLysArgPro  
GCTGGCCGAACAAAGAAAAATGACGTTGTATGTACTTGGCGCAGCATATTAAACGCC  
2700

FIG. 5R

FIG. 5S

ProTyrIleHisTyrArgLeuPheGluProAla\*\*\*ArgGlySerArgHisAlaGlyArg  
 LeuThrSerIleIleGlyTyrLeuSerLeuLeuAspGluAlaProAspMetProValAsp  
 LeuHisProLeuSerValIle\*\*\*AlaCysLeuThrArgLeuGlnThrCysArg\*\*\*Ile  
 CCTTACATCCATTATCGGTTATTTGAGCCCTGCTTGACGAGGCTCCAGACATGCCCGGTAGA  
 . . . . .  
 SerLysGlyLysValCysAlaTyrHisValGlyGlnSerValSerThrArgThrAlaAsn  
 GlnLysAlaLysTyrValHisIleThrLeuAspLysAlaTyrArgLeuGluGlnLeuIle  
 LysArgGlnSerMetCysIleSerArgTrpThrLysArgIleAspSerAsnSer\*\*\*Ser  
 TCAAAGGCAAGTATGTGCATATCAGCTTGACAAAGCGTATCGACTCGAACAGCTAAT  
 . . . . . 2800  
 ArgArgValPhe\*\*\*AspTyrThrVal\*\*\*ProThrAsnAspAsnAlaAsnLysAsnAla  
 AspGluPhePheGluIleThrArgTyrAsnLeuGlnThrIleThrLeuThrLysThrHis  
 ThrSerPheLeuArgLeuHisGlyIleThrTyrLysArg\*\*\*Arg\*\*\*GlnLysArgThr  
 CGACGAGTTTTTTGAGATTACACGGTATAACCTACAAACGATAACGCTAACAAAAACGCA  
 . . . . .

HisArgProIleLeuTyrAlaGlyAlaAspArg\*\*\*IleLeuSerSerAlaPheArg  
IleAspLeuTyrTyrMetLeuValGlnMetThrAspGluPheTyrProGlnLeuSerAla  
\*\*\*ThrTyrThrIleCysTyrCysArg\*\*\*ProMetAsnPheIleLeuSerPheProHis  
CATAGACCTATACTATGCTGGTGCAGATGACCGGATGAATTTTATCCTCAGCTTTCCGC  
. . . 2900 . . .  
ThrTrpLysThrGlyGlyTyrSerArgProArgGlySerAspArgValArgArgPro\*\*\*  
HisGlyLysGlnAlaValIleHisAlaProGluAspLeuThrValSerGlyAspProAsp  
MetGluAsnArgArgLeuPheThrProProArgIle\*\*\*ProCysProAlaThrLeuIle  
ACATGGAAACAGCGGTTATTCACGCCCCGAGGATCTGACCGTGTCGGCGGACCCTGA  
. . . 3000 . . .

FIG. 5T

FIG. 5U

\*\*\*ThrArgGluSerLeu\*\*GlnHisPheGluLysArgArgCysIleGln\*\*Gly\*\*\*  
LysLeuAlaArgValPheAsnAsnIleLeuLysAsnAlaAlaTyrSerGluAspAsn  
AsnSerArgGluSerLeuThrThrPhe\*\*LysThrProLeuHisThrValArgIleThr  
TAAACTCGCGAGAGTCTTTAACAACATTTTGAAAAACGCCGCTGCATACAGTGAGGATAA  
GlnHisHis\*\*HisTyrArgGlyProLeuArgGlyCysGlyValAsnArgIleGlnGlu  
SerIleIleAspIleThrAlaGlyLeuSerGlyAspValValSerIleGluPheLysAsn  
AlaSerLeuThrLeuProArgAlaSerProGlyMetTrpCysGlnSerAsnSerArgThr  
CAGCATCATTGACATTACCGCGGGCCCTCTCCGGGGATGTGGTGCAATCGAATTCAGAA  
HisTrpLysHisProLysArg\*\*AlaSerCysHisIle\*\*LysValLeu\*\*AlaGly  
ThrGlySerIleProLysAspLysLeuAlaAlaIlePheGluLysPheTyrArgLeuAsp  
LeuGluAlaSerGlnLysIleSer\*\*LeuProTyrLeuLysSerSerIleGlyTrpThr  
CACTGGAAGCATCCCAAAAGATAAGCTAGCTGCCATATTTGAAAAGTTCTATAGGCTGGA

GlnPheSerPhePheArgTyrGlyTrpArgGlyThrTrpIleGlyAspCysLysArgAsn  
AsnSerArgSerSerAspThrGlyGlyAlaGlyLeuGlyLeuAlaIleAlaLysGluIle  
IleLeuValLeuProIleArgValAlaArgAspLeuAspTrpArgLeuGlnLysLysLeu  
CAATTCTCGTTCTTCGGATACGGGTGGCGGGGACTTGGATTGGCGATTGCAAAAGAAAT  
3200  
TyrCysSerAlaTrpArgAlaAspLeuArgGlyLysLeu\*\*\*\*\*LeuTyrAspVal\*\*\*  
IleValGlnHisGlyGlyGlnIleTyrAlaGluSerTyrAspAsnTyrThrThrPheArg  
LeuPheSerMetGluGlyArgPheThrArgLysAlaMetIleThrIleArgArgLeuGly  
TATTGTTCAGCATGGAGGGCAGATTACGGGGAAGCTATGATAACTATACGACGTTTAG  
3300

FIG. 5V

FIG. 5W

GlyArgAlaSerSerAspAlaArgLeuGly\*\*\*\*\*LysGluValLeuArgAspValTyr  
ValGluLeuProAlaMetProAspLeuValAspLysArgArgSer\*\*GluMetTyrIle  
\*\*\*SerPheGlnArgCysGlnThrTrpLeuIleLysGlyProLysArgCysIle\*\*\*  
GGTAGAGCTTCCAGCGATGCCAGACTTGGTTGATAAAAGGAGGTCCTAAGAGATGTATAT  
AsnPheLeuGlyLysSerGlnGlyTyrLeuTyrPhePheLeuGlyAsn\*\*GlnPheAsn  
IlePhe\*\*\*GluAsnLeuLysValIlePheThrPheSer\*\*GluIleAsnAsnLeuIle  
PhePheArgLysIleSerArgLeuSerLeuLeuPheLeuArgLysLeuThrIle\*\*\*Tyr  
AATTTTGTAGGAAAATCTCAAGGTTATCTTTTACTTTTCTTAGGAAATTAACAATTTAAT  
IleLysLysArgLeuValLeuThrArg\*\*\*Thr\*\*TyrArgLysAsnGluProPheSer  
LeuArgAsnGlySerPheLeuHisGlyArgLeuAsnThrValArgThrSerArgPheArg  
\*\*\*GluThrAlaArgSerTyrThrValAspLeuIlePro\*\*\*GluArgAlaValPheVal  
ATTAAGAAACGGCTCGTTCTTACACGGTAGACTTAATACCGTAGAACGAGCCGTTTTCG



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PhePheArgGluArgPheAspLysIleThrIleGlyIleProValLeuPheGlyAlaPhe  
SerSerGluLysAspLeuThrArgLeuProLeuAlaSerProPheTyrLeuValProPhe  
LeuGlnArgLysIle\*\*GlnAspTyrHisTrpHisProArgPheIleTrpCysLeuSer  
TTCTTCAGAGAAAGATTTGACAAGATTACCATGGCATCCCGTTTTATTGGTGCCCTTT  
3500  
HisArgLysGlyTrpSer\*\*Leu\*\*IleThrSerAlaLeuLeuPheMetAspValSer  
ThrGluArgValGlyLeuAsnTyrGlu\*\*HisArgHisTyrCysLeuTrpMet\*\*Ala  
GlnLysGlyLeuValLeuIleMetAsnAsnIleGlyIleThrValTyrGlyCysGluGln  
CACAGAAAGGGTGGTCTTAATTATGAATAACATCGGCATTACTGTTTATGGATGTGAGC  
3600

FIG. 5X

ArgMetArgGlnMetHisSerMetLeuPheArgLeuAlaLeuAlaLeuTrpGlnArg\*\*\*  
Gly\*\*\*GlyArgCysIleProCysSerPheAlaSerLeuTrpArgTyrGlyAsnAspAsn  
AspGluAlaAspAlaPheHisAlaLeuSerProArgPheGlyValMetAlaThrIleIle  
AGGATGAGGCAGATGCATTCCATGCTCTTTCCGCCTCGCTTTGGCGTTATGGCAACGATAA  
LeuThrProThrCysArgAsnProThrProAsnProArgLeuSerIleAsnValSerVal  
\*\*\*ArgGlnArgValGlyIleGlnArgGlnIleArgAlaPheGlnSerMetTyrGlnCys  
AsnAlaAsnValSerGluSerAsnAlaLysSerAlaProPheAsnGlnCysIleSerVal  
TTAACGCCAACGGTGTGGGAATCCAACGCCAAATCCGGCGCTTCAATCAATGATCAGTG  
TrpAspIleAsnGlnArgPheProProLeuPhePheLeuArg\*\*\*ArgGluProVal\*\*\*  
GlyThr\*\*\*IleArgAspPheArgLeuTyrSerSerCysAlaGluGluSerArgCysGlu  
GlyHisLysSerGluIleSerAlaSerIleLeuLeuAlaLeuLysArgAlaGlyValLys  
TGGGACATAAATCAGAGATTCCGCCTCTATTCTTCTTGGCTGAAGAGAGCCGGTGTGA

FIG. 5Y

AsnIlePheLeuProGluAlaSerAlaAlaIleIle\*\*IleGlnLeuLeuLeuArgGlu  
IleTyrPheTyrProLysHisArgLeuGlnSerTyrArgTyrAsnCys\*\*GluAsn  
TyrIleSerThrArgSerIleGlyCysAsnHisIleAspThrThrAlaAlaLysArgMet  
AATATATTTCTACCCGAAGCATCGGCTGCAATCATATAGATACAACCTGCTAAGAGAA  
3800  
TrpAlaSerLeuSerThrMetTrpArgThrArgArgIleAlaLeuProIleIleLeu\*\*  
GlyHisHisCysArgGlnCysGlyValLeuAlaGly\*\*ArgCysArgLeuTyrTyrAsp  
GlyIleThrValAspAsnValAlaTyrSerProAspSerValAlaAspTyrThrMetMet  
TGGGCATCACTGTCGACAAATGTGGCGTACTCGCCGGATAGCGTTGCCGATTACTATGA  
3900

FIG. 5Z

FIG. 5AA

Cys\*\*PheLeuTrpGlnTyrAlaThr\*\*AsnArgLeuCysAlaLeuTrpLysAsnMet  
AlaAsnSerTyrGlySerThrGlnArgLysIleAspCysAlaLeuCysGlyLysThr\*\*  
LeuIleLeuMetAlaValArgAsnValLysSerIleValArgSerValGluLysHisAsp  
TGCTAATTCTTATGGCAGTACGCCAACGTAAATCGATTGTGCGCTCTGTGGAACAAACATG  
IleSerGlyTrpThrAlaThrValAlaArgTyrSerAlaThr\*\*GlnLeuValTrpTrp  
PheGlnValGlyGlnArgProTrpGlnGlyThrGlnArgHisAspSerTrpCysGlyGly  
PheArgLeuAspSerAspArgGlyLysValLeuSerAspMetThrValGlyValValGly  
ATTTTCAGGTTGGACAGCGACCGTGGCAAGGTACTCAGCGACAIGACAGTTGGTGGTGG  
GluArgAlaArg\*\*AlaLysArgLeuLeuSerGlyCysGluAspLeuAspValLysCys  
AsnGlyProAspArgGlnSerGlyTyr\*\*AlaAlaAlaArgIleTrpMet\*\*SerVal  
ThrGlyGlnIleGlyLysAlaValIleGluArgLeuArgGlyPheGlyCysLysValLeu  
GAACGGCCAGATAGGCAAGCGGTTATTGAGCGGCTGCGAGGATTTGGATGTAAAGTGT

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TriLeuIleValAlaAlaGluVal**Arg**ThrMetTyrArgLeuMetSerCysCys
GlyLeu**SerGlnProLysTyrArgGlyLysLeuCysThrVal*****ValAlaAla
AlaTyrSerArgSerArgSerIleGluValAsnTyrValProPheAspGluLeuLeuGln
TGGCTTATAGTCGCAGCCGAAAGTATAGAGGTAACCTATGTACCGTTTGATGAGTTGCTGC
.      4100      .      .      .      .
LysIleAlaIleSerLeuArgPheMetCysArgSerIleArgIleArgThrIleLeuSer
Lys**ArgTyrArgTyrAlaSerCysAlaAlaGlnTyrGlyTyrAlaLeuTyrTyrGln
AsnSerAspIleValThrLeuHisValProLeuAsnThrAspThrHisTyrIleIleSer
AAATAGCGATATCGTTACGCTTCATGTGCCGCTCAATACGGATACGCACTATATATCA
.      .      .      .      .      .      4200

```

*FIG. 5BB*

FIG. 5CC

AlaThrAsnLysTyrArgGlu\*\*SerLysGluHisPheLeuSerIleLeuGlyAlaVal  
 ProArgThrAsnThrGluAsnGluAlaArgSerIleSerTyrGlnTyrTrpAlaArgSer  
 HisGluGlnIleGlnArgMetLysGlnGlyAlaPheLeuIleAsnThrGlyArgGlyPro  
 GCCACGAAACAATACAGAGAATGAAGCAAGGAGCAATTTCTTAICAATACTGGCGCGGTC  
 . . . . .  
 HisLeu\*\*IleProMetSerTrpLeuLysHis\*\*LysThrGlyAsnTrpAlaValPro  
 ThrCysArgTyrLeu\*\*ValGly\*\*SerIleArgLysArgGluThrGlyArgCysArg  
 LeuValAspThrTyrGluLeuValLysAlaLeuGluAsnGlyLysLeuGlyGlyAlaAla  
 CACTTGTAGATACCTATGAGTTGGTTAAAGCATTAGAAAACGGGAAACTGGGCGGTGCCG  
 . . . . . 4300 . . .  
 HisTrpMetTyrTrpLysGluArgLysSerPheSerThrLeuIleAlaProLysAsnGln  
 IleGlyCysIleGlyArgArgGlyArgValPheLeuLeu\*\*LeuHisProLysThrAsn  
 LeuAspValLeuGluGlyGluGluPhePheTyrSerAspCysThrGlnLysProIle  
 CATTGGATGTATTGGAAGGAGAGAGAGAGTTTTTCTACTCTGATTGCACCCAAAACCAA  
 . . . . .

LeuIleIleAsnPheTyrLeuAsnPheLysGluCysLeuThr\*\*\*\*\*SerHisArgIle  
\*\*\*\*\*SerIlePheThr\*\*\*ThrSerLysAsnAla\*\*\*ArgAspAsnHisThrAlaTyr  
AspAsnGlnPheLeuLeuLysLeuGlnArgMetProAsnValIleIleThrProHisThr  
TTGATAATCAATTTTACTTAACTTCAAAGAATGCCCTAACGGIGATAATCACACCGCATA  
4400  
ArgProIleIleProSerLysArgCysValIleProLeuLysLysProLeuLysThrVal  
GlyLeuLeuTyrArgAlaSerValAla\*\*\*TyrArg\*\*\*LysAsnHis\*\*\*LysLeuPhe  
AlaTyrTyrThrGluGlnAlaLeuArgAspThrValGluLysThrIleLysAsnCysLeu  
CGGCCTATTATACCGAGCAAGCGTTGCGTGATACCGTTGAAAAAACCATTAATAAACTGTT  
4500

FIG. 5DD

FIG. 5EE

TrpIleLeuLysGlyAspArgSerMetAsnArgIleLysValAlaIleLeuPheGlyGly  
GlyPhe\*\*\*LysGluThrGlyAla\*\*\*IleGlu\*\*\*LysLeuGlnTyrCysLeuGlyVal  
AspPheGluArgArgGlnGluHisGlu\*\*\*AsnLysSerCysAsnThrValTrpGlyLeu  
TGGATTTTGAAGGAGACAGGAGCATGAATAGATAAAAGTTGCAATACTGTTGGGGGT  
CysSerGluGluHisAspValSerValLysSerAlaIleGluIleAlaAlaAsnIleAsn  
AlaGlnArgSerMetThrTyrArg\*\*\*AsnLeuGln\*\*\*Arg\*\*\*ProLeuThrLeuIle  
LeuArgGlyAla\*\*\*ArgIleGlyLysIleCysAsnArgAspSerArg\*\*\*His\*\*\*\*\*  
TGCTCAGAGGAGCATGACGTATCGGTAAATCTGCAATAGAGATAGCCGCTAACATTAAAT  
LysGluLysTyrGluProLeuTyrIleGlyIleThrLysSerGlyValTrpLysMetCys  
LysLysAsnThrSerArgTyrThrLeuGluLeuArgAsnLeuValTyrGlyLysCysAla  
ArgLysIleArgAlaValIleHisTrpAsnTyrGluIleTrpCysMetGluAsnValArg  
AAAGAAAAATACGAGCCGTTATACATTGGAATTACGAAATCTGGTGTATGGAAAAATGTGC



GluLysProCysAlaGluTrpGluAsnAspAsnCysTyrSerAlaValLeuSerProAsp  
LysAsnLeuAlaArgAsnGlyLysThrThrIleAlaIleGlnLeuTyrSerArgArgIle  
LysThrLeuArgGlyMetGlyLysArgGlnLeuLeuPheSerCysThrLeuAlaGly\*\*\*  
GAAAAACCTTGCGCGGAATGGGAAAACGACAATTGCTATTTCAGCTGTACTCTCGCCGGAT  
4700  
LysLysMetHisGlyLeuLeuValLysLysAsnHisGluTyrGluIleAsnHisValAsp  
LysLysCysThrAspTyrLeuLeuLysArgThrMetAsnMetLysSerThrMetLeuMet  
LysAsnAlaArgIleThrCys\*\*\*LysGluPro\*\*\*Ile\*\*\*AsnGlnProCys\*\*\*Cys  
AAAAAATGCACGGATTACTTGTAAAAAGAACCATGAATATGAAATCAACCATGTTGAT  
4800

FIG. 5FF

FIG. 5GG

ValAlaPheSerAlaLeuHisGlyLysSerGlyGluAspGlySerIleGlnGlyLeuPhe  
\*\*\*HisPheGlnLeuCysMetAlaSerGlnValLysMetAspProTyrLysValCysLeu  
SerIlePheSerPheAlaTrpGlnValArg\*\*\*ArgTrpIleHisThrArgSerVal\*\*\*  
GTAGCATTTTCAGCTTTGCATGGCAAGTCAGGTGAAGATGGATCCATACAAAGGTCCTGTTT  
.  
GluLeuSerGlyIlePropheValGlyCysAspIleGlnSerSerAlaIleCysMetAsp  
AsnCysProValSerLeuLeu\*\*\*AlaAlaIlePheLysAlaGlnGlnPheValTrpThr  
IleValArgTyrPropheCysArgLeuArgTyrSerLysLeuSerAsnLeuTyrGlyGln  
GAATTGTCGGTATCCCTTTTGTAGGCTGCGATATTCAAAGCTCAGCAATTGTGTATGGAC  
.  
LysSerLeuThrTyrIleValAlaLysAsnAlaGlyIleAlaThrProAlaPheTrpVal  
AsnArg\*\*\*HisThrSerLeuArgLysMetLeuGly\*\*\*LeuLeuProPropheGlyLeu  
IleValAspIleHisArgCysGluLysCysTrpAspSerTyrSerArgLeuLeuGlyTyr  
AAATCGTTGACATACATCGTTGCGAAAAAATGCTGGGATAGCTACTCCCGCCTTTTGGGTT  
.

4900

IleAsnLysAspAspArgProValAlaAlaThrPheThrTyrProValPheValLysPro  
LeuIleLysMetIleGlyArgTrpGlnLeuArgLeuProIleLeuPheLeuLeuSerArg  
\*\*\*\*\*Arg\*\*\*\*\*AlaGlyGlySerTyrValTyrLeuSerCysPheCys\*\*AlaGly  
ATTAATAAGATGATAGGCCGGTGGCAGCTACGTTTACCTATCCTGTTTTTGTAAAGCCG  
5000  
AlaArgSerGlySerSerPheGlyValLysLysValAsnSerAlaAspGluLeuAspTyr  
ArgValGlnAlaHisProSerVal\*\*LysLysSerIleAlaArgThrAsnTrpThrThr  
AlaPheArgLeuIleLeuArgCysGluLysSerGln\*\*ArgGlyArgIleGlyLeuArg  
GCGCGTTCAGGCTCATCCTTCGGTGTAAGTCAATAGCGCGGACGAAATTGGACTAC  
5100

FIG. 5HH

AlaIleGluSerAlaArgGlnTyrAspSerLysIleLeuIleGluGlnAlaValSerGly  
GlnLeuAsnArgGlnAspAsnMetThrAlaLysSer\*\*\*LeuSerArgLeuPheArgAla  
Asn\*\*\*IleGlyLysThrIle\*\*GlnGlnAsnLeuAsn\*\*\*AlaGlyCysPheGlyLeu  
GCAATTGAATCGGCAAGACAATATGACAGCAAAATCTTAATTGAGCAGGCTGTTTCGGGC  
CysGluValGlyCysAlaValLeuGlyAsnSerAlaAlaLeuValValGlyGluValAsp  
ValArgSerValValArgTyrTrpGluThrValProArg\*\*\*LeuLeuAlaArgTrpThr  
\*\*\*GlyArgLeuCysGlyIleGlyLysGlnCysArgValSerCysTrpArgGlyGlyPro  
TGTGAGGTCGGTTGTGCGGTATTGGGAAACAGTGCCCGGTAGTTGTTGGCGAGGTGGAC  
GlnIleArgLeuGlnTyrGlyIlePheArgIleHisGlnGluValGluProGluLysGly  
LysSerGlyCysSerThrGluSerPheValPheIleArgLysSerSerArgLysLysAla  
AsnGlnAlaAlaValArgAsnLeuSerTyrSerSerGlySerArgAlaGlyLysArgLeu  
CAAATCAGGCTGCAGTACGGAATCTTTCGTATTTCATCAGGAAGTCGAGCCGGAAGGCGC

FIG. 5III

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SerGluAsnAlaValIleThrValProAlaAspLeuSerAlaGluGluArgGlyArgIle  
LeuLysThrGlnLeu\*\*ProPheProGlnThrPheGlnGlnArgSerGluAspGlyTyr  
\*\*LysArgSerTyrAsnArgSerArgArgPropheSerArgGlyAlaArgThrAspThr  
TCTGAAACGCAGTTATAACCGTTCCCGCAGACCTTTCAGCAGAGGAGCGAGCGGATA  
5300  
GlnGluThrAlaLysLysIleTyrLysAlaLeuGlyCysArgGlyLeuAlaArgvalAsp  
ArgLysArgGlnLysLysTyrIleLysArgSerAlaValGluVal\*\*ProValTrpIle  
GlyAsnGlyLysLysAsnIle\*\*SerAlaArgLeu\*\*ArgSerSerProCysGlyTyr  
CAGGAAACGGCAAAAAATATATAAAGCGCTCGGCTGTAGAGGICTAGCCCGTGTGGAT  
5400

FIG. 5JJ

# FIG. 5KK

MetPheLeuGlnAspAsnGlyArgIleValLeuAsnGluValAsnThrLeuProGlyPhe  
CysPheTyrLysIleThrAlaAlaLeuTyr\*\*ThrLysSerIleLeuCysProValSer  
ValPheThrArg\*\*ArgProHisCysThrGluArgSerGlnTyrSerAlaArgPheHis  
ATGTTTTTACAAGATAACGGCCGCGATTGTACTGAACGAAGTCAATACTCTGCCCGGTTTC  
ThrSerTyrSerArgTyrProArgMetMetAlaAlaGlyIleAlaLeuProGluLeu  
ArgHisThrValValIleProVal\*\*TrpProLeuGlnValLeuHisPheProAsn\*\*\*  
ValIleGlnSerLeuSerProTyrAspGlyArgCysArgTyrCysThrSerArgThrAsp  
ACGTCATACAGTCGTTATCCCGGTATGATGGCCGCTGCAGGTATTGCACTTCCCGAACTG  
IleAspArgLeuIleValLeuAlaLeuLysGly\*\*\*\*\*AlaTrpLys\*\*AspLeuLeu  
LeuThrAla\*\*\*SerTyr\*\*Arg\*\*ArgGlyAspLysHisGlyAsnArgIleTyrPhe  
\*\*\*ProLeuAspArgIleSerValLysGlyValIleSerMetGluIleGlyPheThrPhe  
ATTGACCGCTTGATCGTATTAGCGTTAAAGGGGTGATAAGCATGGAATAGGATTTACTT

Phe\*\*\*MetLys\*\*\*TyrThrValPheValGlyThrLeuAsnMetProLeuGlyIleIle  
PheArg\*\*\*AsnSerThrArgCysSerLeuGlyArg\*\*\*IleCysHisLeuGly\*\*\*Phe  
LeuAspGluIleValHisGlyValArgTIPAspAlaLysTyrAlaThrTrpAspAsnPhe  
TTTTAGATGAAATAGTACACGGTGTTCGTTGGGACGCTAAATATGCCACTTGGGATAATT  
5600  
SerProGluAsnArgLeuThrValMetLys\*\*\*IleAlaLeu\*\*\*GlyHisThrSerTrp  
HisArgLysThrGly\*\*\*ArgLeu\*\*\*SerLysSerHisCysArgAspIleArgValGly  
ThrGlyLysProValAspGlyTyrGluValAsnArgIleValGlyThrTyrGluLeuAla  
TCACCGGAAACCGGTTGACGGTTATGAAGTAAATCGCATTTGTAGGGACATACGAGTTGG  
5700

FIG. 5LL

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# FIG. 5MM

LeuAsnArgPhe\*\*ArgGlnLysAsnTrpLeuLeuProLysGlyThrAspCysPheTyr  
 \*\*\*IleAlaPheGluGlyLysArgThrGlyCysTyrProArgValArgIleAlaSerMet  
 GluSerLeuLeuLysAlaLysGluLeuAlaAlaThrGlnGlyTyrGlyLeuLeuTrp  
 CTGAATCGCTTTTGAAGGCAAAAGAACTGGCTGCTACCCAAAGGTACGGATTGCTTCTAT  
 . . . . .  
 GlyThrValThrValLeuSerValLeu\*\*ThrValLeuCysAsnGlyLeuHisSerArg  
 GlyArgLeuProSer\*\*AlaCysCysLysLeuPheTyrAlaMetGlyCysThrAlaGly  
 AspGlyTyrArgProLysArgAlaValAsnCysPheMetGlnTrpAlaAlaGlnProGlu  
 GGGACGGTTACCGTCCTAAGCGTGCTGTAAACTGTTTTTATGCAATGGGCTGCACAGCCGG  
 . . . . . 5800 . . .  
 LysIleThr\*\*GlnArgLysValIleIleProIleLeuThrGluLeuArg\*\*PheGln  
 Lys\*\*ProAspLysGlyLysLeuLeuSerGlnTyr\*\*ProAsn\*\*AspAspPheLys  
 AsnAsnLeuThrLysGluSerTyrTyrProAsnIleAspArgThrGluMetIleSerLys  
 AAAATAACCTGACAAAGGAAAGTTATTATCCCAATATTGACCGAACTGAGATGATTCAA  
 . . . . .



LysAspThrTrpLeuGlnAsnGlnAlaIleAlaAlaValProLeuIleLeuArgPhe  
ArgIleArgGlyPheLysIleLysPro\*\*ProArgGlnCysHis\*\*SerTyrAlaLeu  
GlyTyrValAlaSerLysSerSerHisSerArgGlySerAlaIleAspLeuThrLeuTyr  
AAGGATACGTGGCTTCAAAATCAAGCCATAGCCGCGGCAGTGCCATTGATCTTACGCCTT  
5900  
IleAsp\*\*ThrArgValSerLeuTyrGlnTrpGlyAlaAspLeuIleLeuTrpMetAsn  
SerIleArgHisGly\*\*AlaCysThrAsnGlyGluProIle\*\*PheTyrGly\*\*Thr  
ArgLeuAspThrGlyGluLeuValProMetGlySerArgPheAspPheMetAspGluArg  
ATCGATTAGACACGGTGAGCTTGTAACCAATGGGAGCCGATTGATTTATGGATGAAC  
6000

FIG. 5NN

FIG. 500

AlaLeuIleMetArgGlnMetGluTyrHisAlaMetLysArgLysIleAlaAspValCys  
LeuSerSerCysGlyLysTrpAsnIleMetGln\*\*\*SerAlaLysSerGlnThrPheAla  
SerHisHisAlaAlaAsnGlyIleSerCysAsnGluAlaGlnAsnArgArgArgLeuArg  
GCTCTCATCGGGCAAATGGAATATCATGCAATGAAGCGCAAAATCGCAGACGTTTGC  
AlaProSerTrpLysThrValGlyLeuLysHisIleAlaSerAsnGlyGlyThrMetTyr  
LeuHisHisGlyLysGlnTrpVal\*\*\*SerIle\*\*\*ProArgMetValAlaLeuCysIle  
SerIleMetGluAsnSerGlyPheGluAlaTyrSerLeuGluTrpTrpHisTyrValLeu  
GCTCCATCATGGAAACAGTGGGTTTGAAGCATATAGCCCTCGAATGGTGGCAGTATGTAT  
\*\*\*GluThrAsnHisThrProIleAlaIleLeuIleSerProLeuAsnLysLeuLeuThr  
LysArgArgThrIleProGln\*\*\*LeuPhe\*\*\*PheProArg\*\*\*IleAsnPhe\*\*\*Pro  
ArgAspGluProTyrProAsnSerTyrPheAspPheProValLys\*\*\*ThrPheAsnArg  
TAAGAGACGAACCATACCCCAATAGCTATTTTGATTTCCTCCGTTAAATAAACTTTTAACC

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```
ValAlaArgThrAsnTyrIleSer***LeuPheArgGlnGluThrArgArgMet***Leu
LeuHisGlyGlnThrIle***AlaAsnSerPheGlyArgLysProAspValCysAsnTrp
CysThrAspLysLeuTyrLysLeuThrLeuSerAlaGlyAsnProThrTyrValThrGly
GTTGCACGGACAAACTATATAAGCTAACTCTTTCGGCAGGAAACCCGACGTATGTAAC TG
.      .      .      .      .      .      .      .      .      .
6200
ValLeuArgGluPheIleTyrSerArg***Tyr***ArgCysLysAlaGluArgTyrCys
PheLeuGlyAsnLeuTyrIleValAspSerIleGluAspValArgGlnSerAspIleAla
Ser***GlyIleTyrIle*****IleValLeuLysMet***GlyArgAlaIleLeuArg
GTTCTTAGGGAATTATATATAGTAGATAGTATTGAAGATGTAAAGCAGAGCGGATATTGC
.      .      .      .      .      .      .      .      .      .
6300
```

*FIG. 5PP*

GlyHisTyrLeuArgAlaLeuArgGlnAspSerLeuIleIleIleIleIleIleAla\*\*\*Arg  
ValIleIleCysValArgCysGlyLysIleAla\*\*\*\*\*Asp\*\*\*SerHisArgGly  
SerLeuSerAlaCysAlaAlaAlaArg\*\*proAspAsnLysThrAspArgIleGluGly  
GGTCATTATCTGCGTGGCTGCGGCAAGATAGCCTGATAATAAGACTGATCGCATAGAGG  
GlyGlyIleSerHisArgProLeuSerThrGlySerSerAlaSerLeuAsnSerAlaTrp  
ValValPheHisThrAlaHisCysGlnGlnAlaValGlnPrcArg\*\*\*IleGlnHisGly  
TrpTyrPheThrProIleValAsnArgGlnPheSerLeuValLysPheSerMetGly  
GGTGGTATTTCACACCGCCCATTTGTCAACAGGCAGTTTCAGCCCGTTAAATTCAGCATGG  
ValSerLeuMetLysIleHisLeuHisTrp\*\*\*\*\*IleGln\*\*\*GlyGluIle  
TyrHisLeu\*\*\*LysPheIleTyrIleGlyAspAsnSerLysSerSerArgAlaLys\*\*\*  
IleThrTyrGluAsnSerSerThrLeuValIleIleValAsnProValGlyArgAsnAsn  
GTATCACTTATGAAAATTTCATCTACATTGGTGATAATAGTAAATCCAGTAGGCGGAAATA

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IleAspCysAsnLeuArgGlyLysThrAlaGlnSerGlnThrArgLeuCysArgLeuArg  
LeuThrValIleTyrGlyAlaLysArgHisAsnLeuLysArgAspCysAlaVal\*\*Gly  
\*\*\*Leu\*\*\*PheThrGlyGlnAsnGlyThrIleSerAsnGluIleValProPheLysGly  
ATTGACTGTAATTACGGGGCAAAACGGCACAAATCTCAAACGAGATTGTGCCGTTTAAGG  
6500  
GlyArgPhe\*\*\*LysTyrPheIleLeuProThrIle\*\*\*LeuArgArgArgLeuLysMet  
GluAspSerArgAsnIleSerTyrPheGlnLeuTyrSer\*\*\*GlyGlyAsp\*\*\*Lys\*\*\*  
LysIleLeuGluIlePheHisThrSerAsnTyrIleValLysGluGluThrGluAsnGlu  
GGAAGATTCTAGAAATATTTTCATACTTCCAACTATATAGTTAAGGAGGAGACTGAAATG  
6600

FIG. 5RR

FIG.5SS

LysLysLeuPhePheLeuLeuLeuLeuPheLeuIleTyrLeuGlyTyrAspTyrVal  
ArgSerCysPhePheTyrCysTyrCysTyrSer\*\*\*TyrThr\*\*\*ValMetThrThrLeu  
GluValValPhePheIleValIleValIleLeuAsnIleLeuArgLeu\*\*\*LeuArg\*\*\*  
AAGAAGTTGTTTTTTTATTGTTATTGTTATTCTTAATATACTTAGGTTATGACTACGTT  
. . . . .  
AsnGluAlaLeuPheSerGlnGluLysValGluPheGlnAsnTyrAspGlnAsnProLys  
MetLysHisCysPheLeuArgLysLysSerAsnPheLysIleMetIleLysIleProLys  
\*\*\*SerThrValPheSerGlyLysSerArgIleSerLysLeu\*\*\*SerLysSerGlnArg  
AATGAAGCACTGTTTTCTCAGGAAAAAGTCGAATTTCAAATTTATGATCAAAATCCCCAAA  
. . . . . 6700  
GluHisLeuGluAsnSerGlyThrSerGluAsnThrGlnGluLysThrIleThrGluGlu  
AsnIle\*\*\*LysIleValGlyLeuLeuLysIleProLysArgLysGlnLeuGlnLysAsn  
ThrPheArgLys\*\*\*TrpAspPhe\*\*\*LysTyrProArgGluAsnAsnTyrArgArgThr  
GAACATTAGAAAAATAGTGGGACTTCTGAAAAATACCCAAGAGAAAAACAATTACAGAAGAA  
. . . . .

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GlnValTyrGlnGlyAsnLeuLeuIleAsnSerLysTyrProValArgGlnGluVal  
ArgPheIleLysGluIleCysTyr\*\*\*SerIleValAsnIleLeuPheAlaLysLysCys  
GlyLeuSerArgLysSerAlaIleAsnGln\*\*\*\*\*IleSerCysSerProArgSerVal  
CAGGTTTATCAAGGAAATCTGCTATTATCAATAGTAGTAATATCCTGTTCCCAAGAAAGTG  
6800  
\*\*\*SerGlnIleSer\*\*\*IleTyrLeuAsnMetThrAsn\*\*\*\*\*MetAspThrGlyCys  
GluValArgTyrArgGluPheIle\*\*\*Thr\*\*\*ArgIleAsnLysTrpIleArgValAla  
LysSerAspIleValAsnLeuSerLysHisAspGluLeuIleAsnGlyTyrGlyLeuLeu  
TGAAGTCAGATATCGTGAATTTATCTAAACATGACGAATTAATAATGGATACGGGTTGC  
6900

FIG. 5TT

LeuIleValIlePheIleCysGlnLysLys\*\*HisLysAsnPheGlnArgTrpSerMet  
\*\*\*\*\*TyrLeuTyrValLysArgAsnSerThrLysIlePheArgAspGlyGln\*\*\*  
AspSerAsnIleTyrMetSerLysGluIleAlaGlnLysFheSerGluMetValAsnAsp  
TTGATAGTAATATTTATATGTCAAAAGAAATAGCACAAAATTTTCAGAGATGGTCAATG  
MetLeu\*\*\*ArgValAlaLeuValIleLeuLeuLeuIleValAlaIleGluThrLeuMet  
CysCysLysGlyTrpArg\*\*\*SerPheTyrTyr\*\*\*\*\*TrpLeuSerArgLeu\*\*\*\*\*  
AlaValLysGlyGlyValSerHisPheIleIleAsnSerGlyTyrArgAspPheAspGlu  
ATGCTGTAAAGGGTGGCTTAGTCATTTTATTATTATTAATAGTGGCTATCGAGACTTTGATG  
SerLysValCysPheThrLysLysTrpGlyLeuSerMetPrcTyrGlnGlnValIleVal  
AlaLysCysAlaLeuProArgAsnGlyGly\*\*\*ValCysLeuThrSerArgLeu\*\*\*\*\*  
GlnSerValLeuTyrGlnGluMetGlyAlaGluTyrAlaLeuProAlaGlyTyrSerGlu  
AGCAAAGTGTGCTTTACCAAGAAATGGGGGCTGAGTATGCCTTACCAGCAGGTTATAGTG

FIG. 5UU



SerIleIleGlnValTyrHis\*\*\*Met\*\*\*AspGlnAla\*\*\*ArgLysTrpAsnGluPro  
Ala\*\*\*PheArgPheIleThrArgCysArgIleLysLeuAspGluAsnGlyThrSerPro  
HisAsnSerGlyLeuSerLeuAspValGlySerSerLeuThrLysMetGluArgAlaPro  
AGCATAATTCAGGTTTATCACTAGATGTAGGATCAAGCTTGACGAAAAATGGACGAGCCC  
7100  
LeuLysGluSerGly\*\*\*LysLysMetLeuGlyAsnThrGlySerPheTyrValIleGln  
\*\*\*ArgLysValAspArgArgLysCysLeuGluIleArgValHisPheThrLeuSerArg  
GluGlyLysTrpIleGluGluAsnAlaTrpLysTyrGlyPheIleLeuArgTyrProGlu  
CTGAAGGAAAGTGGATAGAAGAAAATGCTTGGAATACGGGTTTACGTTATCCAG  
7200

FIG. 5V

ArgThrLysGlnSer\*\*\*GlnGluPhe  
GlyGlnAsnArgValAsnArgAsnSer  
AspLysThrGluLeuThrGlyIleGln  
AGGACAAAACAGAGTTAACAGGAATTC

. . 7227

*FIG. 5WW*

FIG. 6A

EcoRV

GATATCGTTACGCTTCATGTCCGCTCAATACGGATACGCACTATATTATCAGCCAGCAAAA 64  
TACAGAGAAATGAAGCAAGGAGCATTTCTTATCAATACTGGCGCGGTCCACTGTAGATACCTATGAGTTGGTTAAGCATTAGAAAAACGG 155  
GAAACTGGCGGTGCCGCATTGGATGTATTGGAAGGAGAGAGAGTTTTTCTACTCTGATTGCACCCAAAAACCAATTGATAATCAATTT 246  
TTACTTAAACTTCAAAGAATGCCTAACGTGATAATCACACGCATACGGCCTATTATACCGAGCAAGCGTTGCGTGATACCGTTGAAAAAAA 337  
HaeIII  
RBS ▼MET ASN ARG ILE LYS VAL ALA ILE LEU PHE GLY GLY CYS  
CCATTAAAACTGTTGGATTTIGAAAGGAGACAGGAGC ATG AAT AGA ATA AAA GTT GCA ATA CTG TTT GGG GGT TGC 415  
NlaIII  
SER GLU GLU HIS ASP VAL SER VAL LYS SER ALA ILE GLU ILE ALA ALA ASN ILE ASN LYS GLU LYS TYR  
TCA GAG GAG AAT GAC GTA TCG GTA AAA TCT GCA ATA GAG ATA GCC GCT AAC ATT AAT AAA GAA AAA TAC 484  
GLU PRO LEU TYR ILE GLY ILE THR LYS SER GLY VAL TRP LYS MET CYS GLU LYS PRO CYS ALA GLU TRP  
GAG CCG TTA TAC ATT GGA ATT GCG AAA TCT GGT GTA TGG AAA ATG TGC GAA AAA CCT TGC GCG GAA TGG 553  
GLU ASN ASP ASN CYS TYR SER ALA VAL LEU SER PRO ASP LYS LYS MET HIS GLY LEU LEU VAL LYS LYS  
GAA AAC GAC AAT TGC TAT TCA GCT GTA CTC TCG CCG GAT AAA AAA ATG CAC GGA TTA CTT GTT AAA AAG 622  
ASN HIS GLU TYR GLU ILE ASN HIS VAL ASP VAL ALA PHE SER ALA LEU HIS GLY LYS SER GLY GLU ASP  
AAC CAT GAA TAT GAA ATC AAC CAT GTT GAT GTA GCA TTT TCA GCT TTG CAT GGC AAG TCA GGT GAA GAT 691  
GLY SER ILE GLN GLY LEU PHE GLU LEU SER GLY ILE PRO PHE VAL GLY CYS ASP ILE GLN SER SER ALA  
GGA TCC ATA CAA GGT CTG TTT GAA TTG TCC GGT ATC CCT TTT GTA GGC TGC GAT ATT CAA AGC TCA GCA 760  
ILE CYS MET ASP LYS SER LEU THR TYR ILE VAL ALA LYS ASN ALA GLY ILE ALA THR PRO ALA PHE TRP  
ATT TGT ATG GAC AAA TCG TTG ACA TAC ATC GTT GCG AAA AAT GCT GGG ATA GCT ACT CCC GCC TTT TGG 829  
VAL ILE ASN LYS ASP ARG PRO VAL ALA ALA THR PHE THR TYR PRO VAL PHE VAL LYS PRO ALA ARG  
GTT ATT AAT AAA GAT GAT AGG CCG GTG GCA GCT ACG TTT ACC TAT CCT GTT TTT GTT AAG CCG GCG CGT 898

**FIG. 6B**

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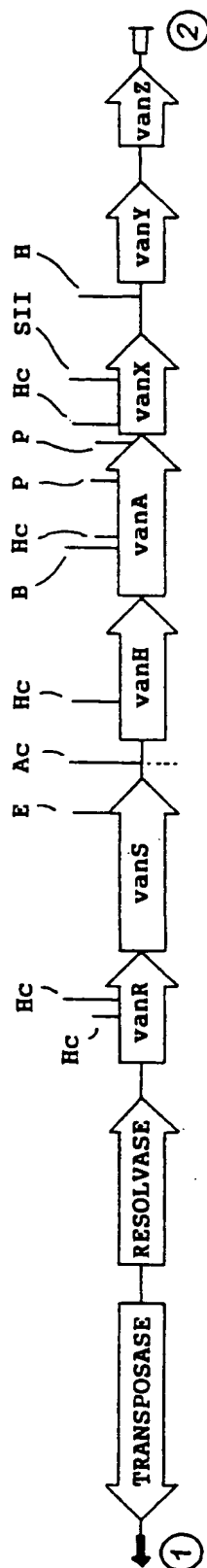


FIG. 7A

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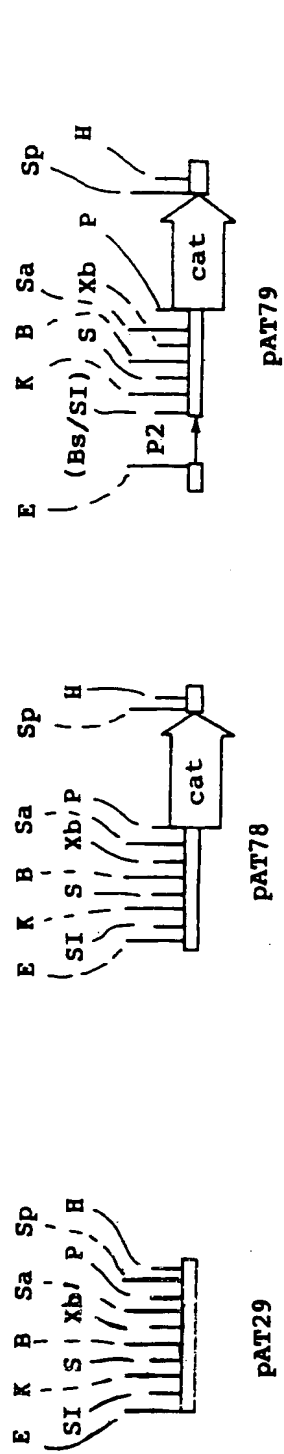


FIG. 7B

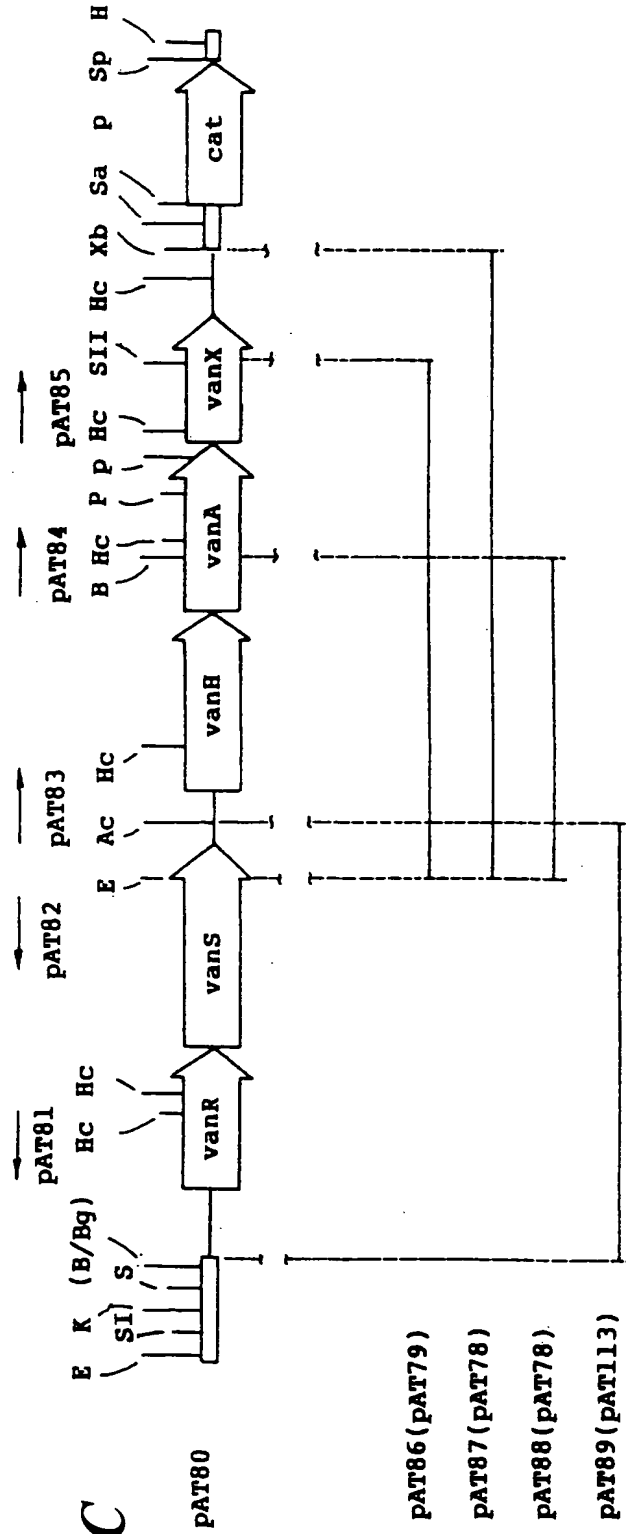


FIG. 7C

PAT86 (PAT79)  
 PAT87 (PAT78)  
 PAT88 (PAT78)  
 PAT89 (PAT113)

FIG. 7D

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la. brin "+"

1  
GGG GTA GCG TCA GGA AAA TGC GGA TTT ACA ACG CTA AGC CTA TTT TCC TGA CGA ATC CCT  
61  
CGT TTT TAA CAA CGT TAA GAA AGT TTT AGT GGT CTT AAA GAA TTT AAT GAG ACT ACT TTC  
121  
TCT GAG TTA AAA TGG TAT TCT CCT AGT AAA TTA ATA TGT TCC CAA CCT AAG GGC GAC ATA  
181  
TGG TGT AAC AAA TCT TCA TTA AAG CTA CCT GTC CGT TTT TTA TAT TCA ACT GCT GTT GTT  
241  
AGG TGG AGA GTA TTC CAA ATA CTT ATA GCA TTG ATA ATT ATG TTT AAA GCA CTG GCT CTT  
301  
TGC AAT TGA TGC TGT ATG GTG CGT TCT CTA AGC TCA CCT TGT TTT CCG AAG AAA ATA GCT  
361  
CTT GCC AAT CCA TTC ATG GCT TCT CCT TTA TTC AAT CCT CTT TGT ATT TTT CTT CTT AAT  
421  
GAT TCA TCC GAT ATA TAA TTC AAA ATA AAG ATC GTT TTT TCT ATT CGG CCC ATC TCA CGT  
481  
AAG GCT GTA GCT AAG CTG TTT TGT CTT GAA TAG GAA CCT AGC TTC CCC ATA ATA AGG GAT  
541  
GCT GAA ACT GTT CCC TCC CTT ATA GAA TGA GCT AAT CGC AAA ACA TCC TCA TAA TTT TCT  
601  
TTA ATG ACC TTT GTA TTT ATT TGT TGT CCA CGT AAA ATG GCT TCT AGT TTT GGA TAC TCA CTT

FIG. 8A

661  
GCT TTA TCT ATC GTA AAT AAT TTT GAG TCC GAT AAA TCC CTT ATT CTT GGG GCA AAT TTA  
721  
AAT CCT AAT AAA TGA GTC AGT CCG AAT AAT TGG TCA GTG TAA CCG GCA GTG TCT GTA TAA  
781  
TGT TCC TCT ATG TTT AGA TCC GTC TCA TGA TGT AAC AAA CCA TCC AAA ACA TGA ATC GCA  
841  
TCT CTT GAA TTA GTA TGA ATA ATC TTT GTG TAG TAA GAA GAG AAT TGA TCA CTT GTA AAT  
901  
CGG TAG ATG GTG GCT CCT TTT CCA GTT CCA TAA TGT GGA TTT GCA TCT GCA TGT AGT GAT  
961  
GAA ACA CCT AGC TGC ATT CTC ATA CCA TCT GAC GAA GAT GTT GTA CCG TCG CCC CAA TAG  
1021  
AAA GGC AAT TGT AAT TTA TGA TGA AAG TTT ACT AAT ATG GCT TGG GCT TTA TTC ATG GCA  
1081  
TCT TCA TAC ATG CGC CAT TGA GAT ACA TTG GCT AGT TGC TTA TAT GTA AGT CCG GGT GTG  
1141  
GCT TCG GCC ATC TTG CTC AAG CCA ATA TTC ATT CCC ATT CCA AGG GCA GCC ATG ATA  
1201  
ATG ATT GTT TCT TCC TTA TCT GGT TTT CGA TTA TTG GAA GCA TGA GTG AAT TGC TCA TGA  
1261  
AAT CCT GTT ATA TGG GCC ACA TCC ATG AGT AAA TCA GTT AAT TTT ATT CTT GGT AGC ATC  
1321  
TGA TAA AGG CTT GCA CTA AAT TTT TTT GCT TCT TCT GGA ACA TCT TTT TCT AAG CGT GCA  
1381  
AGT GAT AGC TTT GCT TTT TCA AGA GAA ACC CCA TCT AAC TTA TTG GAA TTG GCA GCT AAC  
1441  
CAC TTT AAC CTT TCA TTA AAG CTG GTT CTC TCC GTT ATA TAA TCT TCG AAT GAT AAA

FIG. 8B



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1501 CTA ACT GAT AAT CTC GTA TTC CCC TTC GAT TGA TTC CAT GTA TCT TCC GAA AAC AAA TAT  
1561 TCC TCA AAA TCC CTA TAT TGT CTG CCA ACA ATG GAA ACA TCT CCT GCC CGA ACA TGC  
1621 TCC CGA AGT TCT GTT AAA ACA GCC ATT TCA TAG TAA TGA CGA TTA ATT GTT GTA CCA TCA  
1681 TCC TCG TAT AAA TGT CTT TTC CAT CGT TTT GAA ATA AAA TCC ACA GGT GAG TCA TCA GGC  
1741 ACT TTT CGC TTT CCA GAT TCG TTC ATT CCT CGG ATA ATC TCA ACA GCT TGT AAA AGT GGC  
1801 TCA TTT GCC TTT GTA GAA TGA AAT TCC AAT ACT CTT AAT AGC GTT GGC GTA TAT TTT CTT  
1861 AGT GAA TAA AAC CGT TTT TGC AGT AAG TCT AAA TAA TCA TAG TCG GCA GGA CGT GCA AGT  
1921 TCC TGA GCC TCT TCT ACT GAA GAG ACA AAG GTA TTC CAT TCA ATA ACC GAT TCT AAA ACC  
1981 TTA AAA ACG TCT AAT TTT TCC TCT CTT GCT TTA ATT AAT GCT TGT CCG ATG TTC GTA AAG  
2041 TGT ATA ACT TTC TCA TTT AGC TTT TTA CCG TTT TGT TTC TGG ATT TCC TCT TGA GCC TTA  
2101 CGA CCT TTT GAT AAC AAA CTA AGT ATT TGC CTA TCA TGA ATT TCA AAC GCT TTA TCC GTT  
2161 AGC TCC TGA GTA AGT TGT AAT AAA TAG ATG GTT AAT ATC GAA TAA CGT TTA TTT TCT TGA  
2221 AAG TCA CGG AAT GCA TAC GGC TCG TAT CTT GAG CCT AAG CGA GAC AGC TGC AAC AGG CGG  
2281 TTA CGG TGC AAA TGA CTA ATT TGC ACT GTT TCT AAA TCC ATT CCT CGT ATG TAT TCG AGT  
2341

FIG. 8C

FIG. 8D

CGT TCT ATT ATT TTT AGA AAA GTT TCG GGT GAA GGA TGA CCC GGT GGC TCT TTT AAC CAA  
2401  
CCC AAT ATC GTT TTA TTG GAT TCG GAT GGA TGC TGC GAG GTA ATA ATC CCT TCA AGC TTT  
2461  
TCT TTT TGC TCA TTT GTT AGA GAT TTA CTA ACC GTA TTA AAT AGC TTC TTT TCA GCC ATT  
2521  
GCC CTT GCT TCC CAC ACC ATT CTT TCA AGT GTA GTG ATA GCA GGC AGT ATA ATT TTG TTT  
2581  
TTT CTT AGA AAA TCT ATG CAT TCA TGC AGT AGA TGA ATG GCA TCA CCA TTT TCC AAA GCT  
2641  
AAT TGA TGA AGG TAC TTA AAT GTC ATT CGA TAT TCA CTC AGG GTA AAA GTT ACA AAG TCG  
2701  
TAT TCA CTT CGA ATT TCT TTC AAA TGA TCC CAA AGT GTA TTT TCC CTT TGA GGA TAA TGA  
2761  
TCA AGC GAG GAT GGA CTA ACA CCA ATC TGT TTC GAT ATA TAT TGT ATG ACC GAA TCT GGG  
2821  
ATG CTT TTG ATA TGA GTG TAT GGC CAA CCG GGA TAC CGA AGA ACA GCT AAT TGA ACA GCA  
2881  
AAT CCT AAA CGG TTT TCT TCC CTC CTT CGC TTA TTA ACT ATT TCT AAA TCC CGT TTG GAA  
2941  
AAA GTG AAG TAG GTC CCC AGT ATC CAT TCA TCT TCA GGG ATT TGC ATA AAA GCC TGT CTC  
3001  
TGT TCC GGT GTA AGC AAT TCT CTA CCT CTC GCA ATT TTC ATT CAG TAT CAT TCC ATT TCT  
3061  
GTA TTT TCA ATT TAT TAG TTC AAT TAT ATA TCA ATA GAG TGT ACT CTA TTG ATA CAA ATG  
3121  
TAG TAG ACT GAT AAA ATC ATA GTT AAG AGC GTC TCA TAA GAC TTG TCT CAA AAA TGA GGT

3181 resolve  
LEU ARG LYS ILE GLY TYR ILE ARG VAL SER SER THR ASN GLN ASN PRO SER ARG  
GAT ATT TTG CGG AAA ATC GGT TAT ATT CGT GTC AGT TCG ACT AAC CAG AAT CCT TCA AGA  
3241  
GLN PHE GLN GLN LEU ASN GLU ILE GLY MET ASP ILE ILE TYR GLU GLU LYS VAL SER GLY  
CAA TTT CAG CAG TTG AAC GAG ATC GGA ATG GAT ATT ATA TAT GAA GAG AAA GTT TCA GGA  
3301  
ALA THR LYS ASP ARG GLU GLN LEU LYS VAL LEU ASP ASP LEU GLN GLU ASP ASP ILE  
GCA ACA AAG GAT CGC GAG CAA CTT CAA AAA GTG TTA GAC GAT TTA CAG GAA GAT GAC ATC  
3361  
ILE TYR VAL THR ASP LEU THR ARG ILE THR ARG SER THR GLN ASP LEU PHE GLU LEU ILE  
ATT TAT GTT ACA GAC TTA ACT CGA ATC ACT ACT CGT AGT ACA CAA GAT CTA TTT GAA TTA ATC  
3421  
ASP ASN ILE ARG ASP LYS LYS ALA SER LEU LYS SER LEU LYS ASP THR TRP LEU ASP LEU  
GAT AAC ATA CGA GAT AAA AAG GCA AGT TTA AAA TCA CTA AAA GAT ACA TGG CTT GAT TTA  
3481  
SER GLU ASP ASN PRO TYR SER GLN PHE LEU ILE THR VAL MET ALA GLY VAL ASN GLN LEU  
TCA GAA GAT AAT CCA TAC AGC CAA TTC TTA ATT ACT GTA ATG GCT GGT AAC CAA TTA  
3541  
GLU ARG ASP LEU ILE ARG MET ARG GLN ARG GLU GLY ILE GLU LEU ALA LYS LYS GLU GLY  
GAG CGA GAT CTT ATT CGG ATG AGA CAA CGT GAA GGG ATT GAA TTG GCT AAG AAA GAA GGA  
3601  
LYS PHE LYS GLY ARG LEU LYS LYS TYR HIS LYS ASN HIS ALA GLY MET ASN TYR ALA VAL  
AAG TTT AAA GGT CGA TTA AAG AAG TAT CAT AAA AAT CAC GCA GGA ATG AAT TAT GCG GTA  
3661  
LYS LEU TYR LYS GLU GLY ASN MET THR VAL ASN GLN ILE CYS GLU ILE THR ASN VAL SER  
AAG CTA TAT AAA GAA GGA AAT ATG ACT GTA AAT CAA ATT TGT GAA ATT ACT AAT GTA TCT  
3721  
ARG ALA SER LEU TYR ARG LYS LEU SER GLU VAL ASN ASN  
AGG GCT TCA TTA TAC AGG AAA TTA TCA GAA GTG AAT AAT TAG CCA TTC TGT ATT CCG CTA

FIG. 8E

3781 ATG GGC AAT ATT TTT AAA GAA GAA AAG GAA ACT ATA AAA TAT TAA CAG CCT CCT AGC GAT  
3841 GCC GAA AAG CCC TTT GAT AAA AAA AGA ATC ATC TTA AGA AAT TCT TAG TCA TTT ATT  
3901 ATG TAA ATG CTT ATA AAT TCG GCC CTA TAA TCT GAT AAA TTA TTA AGG GCA AAC TTA TGT  
3961 VanR MET SER ASP LYS ILE LEU ILE VAL ASP ASP GLU HIS GLU ILE ALA  
GAA AGG GTG ATA ACT ATG AGC GAT AAA ATA CTT ATT GTG GAT GAT GAA CAT GAA ATT GCC  
4021 ASP LEU VAL GLU LEU TYR LEU LYS ASN GLU ASN TYR THR VAL PHE LYS TYR TYR THR ALA  
GAT TTG GTT GAA TTA TAC TTA AAA AAC GAG AAT TAT ACG GTT TTC AAA TAC TAT ACC GCC  
4081 LYS GLU ALA LEU GLU CYS ILE ASP LYS SER GLU ILE ASP LEU ALA ILE LEU ASP ILE MET  
AAA GAA GCA TTG GAA TGT ATA GAC AAG TCT GAG ATT GAC CTT GCC ATA TTG GAC ATC ATG  
4141 LEU PRO GLY THR SER GLY LEU THR ILE CYS GLN LYS ILE ARG ASP LYS HIS THR TYR PRO  
CTT CCC GGC ACA AGC GGC CTT ACT ATC TGT CAA AAA ATA AGG GAC AAG CAC ACC TAT CCG  
4201 ILE ILE MET LEU THR GLY LYS ASP THR GLU VAL ASP LYS ILE THR GLY LEU THR ILE GLY  
ATT ATC ATG CTG ACC GGG AAA GAT ACA GAG GTA GAT AAA ATT ACA GGG TTA ACA ATC GGC  
4261 ALA ASP ASP TYR ILE THR LYS PRO PHE ARG PRO LEU GLU LEU ILE ALA ARG VAL LYS ALA  
GCG GAT GAT TAT ATA ACG AAG CCC TTT CGC CCA CTG GAG TTA ATT GCT CGG GTA AAG GCC  
4321 GLN LEU ARG ARG TYR LYS LYS PHE SER GLY VAL LYS GLU GLN ASN GLU ASN VAL ILE VAL  
CAG TTG CGC CGA TAC AAA AAA TTC AGT GGA GTA AAG GAG CAG AAC GNA AAT GTT ATC GTC

FIG. 8F

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FIG. 8G

4381  
HIS SER GLY LEU VAL ILE ASN VAL ASN THR HIS GLU CYS TYR LEU ASN GLU LYS GLN LEU  
CAC TCC GGC CTT GTC ATT AAT GTT AAC ACC CAT GAG TGT TAT CTG AAC GAG AAG CAG TTA  
4441  
SER LEU THR PRO THR GLU PHE SER ILE LEU ARG ILE LEU CYS GLU ASN LYS GLY ASN VAL  
TCC CTT ACT CCC ACC GAG TTT TCA ATA CTG CGA ATC CTC TGT GAA AAC AAG GGG AAT GTG  
4501  
VAL SER SER GLU LEU LEU PHE HIS GLU ILE TRP GLY ASP GLU TYR PHE SER LYS SER ASN  
GTT AGC TCC GAG CTG CTA TTT CAT GAG ATA TGG GGC GAC GAA TAT TTC AGC AAG AGC AAC  
4561  
ASN THR ILE THR VAL HIS ILE ARG HIS LEU ARG GLU LYS MET ASN ASP THR ILE ASP ASN  
AAC ACC ATC ACC GTG CAT ATC CGG CAT TTG CGC GAA AAA ATG AAC GAC ACC ATT GAT AAT  
4621  
PRO LYS TYR ILE LYS THR VAL TRP GLY VALGLYTYRGLYSILEGLULYS  
CCG AAA TAT ATA AAA ACG GTA TGG GGG GTTGGTTATAAAATTGAAAAT AAA AAA AAC GAC  
4682  
TYR SER LYS LEU GLU ARG LYS LEU TYR MET TYR ILE VAL ALA ILE VAL VAL VAL ALA ILE  
TAT TCC AAA CTA GAA CGA AAA CTT TAC ATG TAT ATC GTT GCA ATT GTT GTG GTA GCA ATT  
4742  
VAL PHE VAL LEU TYR ILE ARG SER MET ILE ARG GLY LYS LEU GLY ASP TRP ILE LEU SER  
GTA TTC GTG TTG TAT ATT CGT TCA ATG ATC CGA GGG AAA CTT GGG GAT TGG ATC TTA AGT  
4802  
ILE LEU GLU ASN LYS TYR ASP LEU ASN HIS LEU ASP ALA MET LYS LEU TYR GLN TYR SER  
ATT TTG GAA AAC AAA TAT GAC TTA AAT CAC CTG GAC GCG ATG AAA TTA TAT CAA TAT TCC  
4862  
ILE ARG ASN ASN ILE ASP ILE PHE ILE TYR VAL ALA ILE VAL ILE SER ILE LEU ILE LEU  
ATA CGG AAC AAT ATA GAT ATC TTT ATT TAT GTG GCG ATT GTG ATT AGT ATT CTT ATT CTA  
4922  
CYS ARG VAL MET LEU SER LYS PHE ALA LYS TYR PHE ASP GLU ILE ASN THR GLY ILE ASP  
TGT CGC GTC ATG CTT TCA AAA TTC GCA AAA TAC TTT GAC GAG ATA AAT ACC GGC ATT GAT

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4982 VAL LEU ILE GLN ASN GLU ASP LYS GLN ILE GLU LEU SER ALA GLU MET ASP VAL MET GLU  
GTA CTT ATT CAG AAC GAA GAT AAA CNA ATT GAG CTT TCT GCG GAA ATG GAT GTT ATG GAA  
5042 GLN LYS LEU ASN THR LEU LYS ARG THR LEU GLU LYS ARG GLU GLN ASP ALA LYS LEU ALA  
CAA AAG CTC AAC ACA TTA AAA CCG ACT CTG GAA AAG CGA GAG CAG GAT GCA AAG CTG GCC  
5102 GLU GLN ARG LYS ASN ASP VAL VAL MET TYR LEU ALA HIS ASP ILE LYS THR PRO LEU THR  
GAA CAA AGA AAA AAT GAC GTT GTT ATG TAC TTG GCG CAC GAT ATT AAA ACG CCC CTT ACA  
5162 SER ILE ILE GLY TYR LEU SER LEU LEU ASP GLU ALA PRO ASP MET PRO VAL ASP GLN LYS  
TCC ATT ATC GGT TAT TTG AGC CTG CTT GAC GAG GCT CCA GAC ATG CCG GTA GAT CAA AAG  
5222 ALA LYS TYR VAL HIS ILE THR LEU ASP LYS ALA TYR ARG LEU GLU GLN LEU ILE ASP GLU  
GCA AAG TAT GTG CAT ATC ACG TTG GAC AAA GCG TAT CGA CTC GAA CAG CTA ATC GAC GAG  
5282 PHE PHE GLU ILE THR ARG TYR ASN LEU GLN THR ILE THR LEU THR LYS THR HIS ILE ASP  
TTT TTT GAG ATT ACA CGG TAT AAC CTA CAA ACG ATA ACG CTA ACA AAA ACG CAC ATA GAC  
5342 LEU TYR TYR MET LEU VAL GLN MET THR ASP GLU PHE TYR PRO GLN LEU SER ALA HIS GLY  
CTA TAC TAT ATG CTG GTG CAG ATG ACC ACC GAT GAA TTT TAT CCT CAG CTT TCC GCA CAT GGA  
5402 LYS GLN ALA VAL ILE HIS ALA PRO GLU ASP LEU THR VAL SER GLY ASP PRO ASP LYS LEU  
AAA CAG GCG GTT ATT CAC GCC CCC GAG GAT CTG ACC GTG TCC GGC GAC CCT GAT AAA CTC  
5462 ALA ARG VAL PHE ASN ASN ILE LEU LYS ASN ALA ALA TYR SER GLU ASP ASN SER ILE  
GCG AGA GTC TTT AAC AAC ATT TTG AAA AAC GCC GCT GCA TAC AGT GAG GAT AAC AGC ATC

FIG. 8H

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5522 ILE ASP ILE THR ALA GLY LEU SER GLY ASP VAL VAL SER ILE GLU PHE LYS ASN THR GLY  
 ATT GAC ATT ACC GCG GGC CTC TCC GGG GAT GTG GTG TCA ATC GAA TTC AAG AAC ACT GGA  
 5582 SER ILE PRO LYS ASP LYS LEU ALA ALA ILE PHE GLU LYS PHE TYR ARG LEU ASP ASN ALA  
 AGC ATC CCA AAA GAT AAG CTA GCT GCC ATA TTT GAA AAG TTC TAT AGG CTG GAC AAT GCT  
 5642 ARG SER SER ASP THR GLY GLY ALA GLY LEU GLY LEU ALA ILE ALA LYS GLU ILE ILE VAL  
 CGT TCT TCC GAT AC GGT GGC GCG GGA CTT GGA TTG GCG ATT GCA AAA GAA ATT ATT GTT  
 5702 GLN HIS GLY GLY GLN ILE TYR ALA GLU SER ASN ASP TYR THR THR PHE ARG VAL GLU  
 CAG CAT GGA GGG CAG ATT TAC GCG GAA AGC AAT GAT AAC TAT ACG ACG TTT AGG GTA GAG  
 5762 LEU PRO ALA MET PRO ASP LEU VAL ASP LYS ARG ARG SER  
 CTT CCA GCG ATG CCA GAC TTG GTT GAT AAA AGG AGG TCC TAA GA GAT GTA TAT AAT TTT  
 5821 TTA GGA AAA TCT CAA GGT TAT CTT TAC TTT TTC TTA GGA AAT TAA CAA TTT AAT ATT AAG  
 5881 AAA CGG CTC GTT CTT ACA CGG TAG ACT TAA TAC CGT AAG AAC GAG CCG TTT TCG TTC TTC  
 5941 AGA GAA AGA TTT GAC AAG ATT ACC ATT GGC ATC CCC GTT TTA TTT GGT GCC TTT CAC AGA  
 6001  
 VanH MET ASN ASN ILE GLY ILE THR VAL TYR GLY CYS GLU GLN ASP GLU  
 AAGGGTTGG TCT TAA TT ATG AAT AAC ATC GGC ATT ACT GTT TAT GGA TGT GAG CAG GAT GAG  
 6063  
 ALA ASP ALA PHE HIS ALA LEU SER PRO ARG PHE GLY VAL MET ALA THR ILE ILE ASN ALA  
 GCA GAT GCA TTC CAT GCT CTT TCG CCT CGC TTT GGC GTT ATG GCA ACG ATA ATT AAC GCC  
 6123

FIG. 81

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ASN VAL SER GLU SER ASN ALA LYS SER ALA PRO PHE ASN GLN CYS ILE SER VAL GLY HIS  
AAC GTG TCG GAA TCC AAC GCC AAA TCC GCG CCT TTC AAT CAA TGT ATC AGT GTG GGA CAT  
6183  
LYS SER GLU ILE SER ALA SER ILE LEU LEU ALA LEU LYS ARG ALA GLY VAL LYS TYR ILE  
AAA TCA GAG ATT TCC GCC TCT ATT CTT CTT GCG CTG AAG AGA GCC GGT GTG AAA TAT ATT  
6243  
SER THR ARG SER ILE GLY CYS ASN HIS ILE ASP THR THR ALA ALA LYS ARG MET GLY ILE  
TCT ACC CGA AGC ATC GGC TGC AAT CAT ATA GAT ACA ACT GCT GCT AAG AGA ATG GGC ATC  
6303  
THR VAL ASP ASN VAL ALA TYR SER PRO ASP SER VAL ALA ASP TYR THR MET MET LEU ILE  
ACT GTC GAC AAT GTG GCG TAC TCG CCG GAT AGC GTT GCC GAT TAT ACT ATG ATG CTA ATT  
6363  
LEU MET ALA VAL ARG ASN VAL LYS SER ILE VAL ARG SER VAL GLU LYS HIS ASP PHE ARG  
CTT ATG GCA GTA CGC AAC GTA AAA TCG ATT GTG CGC TCT GTG GAA AAA CAT GAT TTC AGG  
6423  
LEU ASP SER ASP ARG GLY LYS VAL LEU SER ASP MET THR VAL VAL GLY VAL GLY THR GLY  
TTG GAC AGC GAC CGT GGC AAG GTA CTC AGC GAC ATG ACA GTT GGT GTG GTG GGA ACG GGC  
6483  
GLN ILE GLY LYS ALA VAL ILE GLU ARG LEU ARG GLY PHE GLY CYS LYS VAL LEU ALA TYR  
CAG ATA GGC AAA GCG GTT ATT GAG CGG CTG CGA GGA TTT GGA TGT AAA GTG TTG GCT TAT  
6543  
SER ARG SER ARG SER ILE GLU VAL ASN TYR VAL PRO PHE ASP GLU LEU LEU GLN ASN SER  
AGT CGC AGC CGA AGT ATA GAG GTA AAC TAT GTA CCG TTT GAT GAG TTG CTG CAA AAT AGC  
6603  
ASP ILE VAL THR LEU HIS VAL PRO LEU ASN THR ASP THR HIS TYR ILE ILE SER HIS GLU  
GAT ATC GTT ACG CTT CAT GTG CCG CTC AAT ACG GAT ACG CAC TAT ATT ATC AGC CAC GAA  
6663  
GLN ILE GLN ARG MET LYS GLN GLY ALA PHE LEU ILE ASN THR GLY ARG GLY PRO LEU VAL  
CAA ATA CAG AGA ATG AAG CAA GGA GCA TTT CTT ATC AAT ACT GGG CGC GGT CCA CTT GTA

FIG. 8J



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6723 ASP THR TYR GLU LEU VAL LYS ALA LEU GLY ASN GLY LYS LEU GLY GLY ALA ALA LEU ASP  
GAT ACC TAT GAG TTG GTT AAA GCA TTA GAA AAC GGG AAA CTG GGC GGT GCC GCA TTG GAT  
6783 VAL LEU GLU GLY GLU GLU PHE PHE TYR SER ASP CYS THR GLN LYS PRO ILE ASP ASN  
GTA TTG GAA GGA GAG GAA GAG TTT TTC TAC TCT GAT TGC ACC CAA AAA CCA ATT GAT AAT  
6843 GLN PHE LEU LEU LYS LEU GLN ARG MET PRO ASN VAL ILE ILE THR PRO HIS THR ALA TYR  
CAA TTT TTA CTT AAA CTT CAA AGA ATG CCT AAC GTG ATA ATC ACA CCG CAT ACG GCC TAT  
6903 TYR THR GLU GLN ALA LEU ARG ASP THR VAL GLU LYS THR ILE LYS ASN CYS LEU ASP PHE  
TAT ACC GAG CAA GCG TTG CGT GAT ACC GTT GAA AAA ACC ATT AAA AAC TGT TTG GAT TTT  
6963 Vbna METASN ARG ILE LYS VAL ALA ILE LEU PHE GLY GLY CYS SER  
GAA AGG AGA CAG GAG CATGAAT AGA ATA AAA GTT GCA ATA CTG TTT GGG GGT TGC TCA  
GLU ARG ARG GLN GLU HISGLU  
7021 GLU GLU HIS ASP VAL SER VAL LYS SER ALA ILE GLU ILE ALA ALA ASN ILE ASN LYS GLU  
GAG GAG CAT GAC GTA TCG GTA AAA TCT GCA ATA GAG ATA GCC GCT AAC ATT AAT AAA GAA  
7081 LYS TYR GLU PRO LEU TYR ILE GLY ILE THR LYS SER GLY VAL TRP LYS MET CYS GLU LYS  
AAA TAC GAG CCG TTA TAC ATT GGA ATT ACG AAA TCT GGT GTA TGG AAA ATG TGC GAA AAA  
7141 PRO CYS ALA GLU TRP GLU ASN ASP ASN CYS TYR SER ALA VAL LEU SER PRO ASP LYS LYS  
CCT TGC GCG GAA TGG GAA AAC GAC AAT TGC TAT TCA GCT GTA CTC TCG CCG GAT AAA AAA  
7201 MET HIS GLY LEU LEU VAL LYS LYS ASN HIS GLU TYR GLU ILE ASN HIS VAL ASP VAL ALA  
ATG CAC GGA TTA CTT GTT AAA AAG AAC CAT GAA TAT GAA ATC AAC CAT GTT GAT GTA GCA  
7261

FIG. 8K

PHE SER ALA LEU HIS GLY LYS SER SER GLY GLU ASP GLY SER ILE GLN GLY LEU PHE GLU LEU  
TTT TCA GCT TTG CAT GGC AAG TCA GGT GAA GAT GGA TCC ATA CAA GGT CTG TTT GAA TTG  
7321  
SER GLY ILE PRO PHE VAL GLY CYS ASP ILE GLN SER SER ALA ILE CYS MET ASP LYS SER  
TCC GGT ATC CCT TTT GTA GGC TGC GAT ATT CAA AGC TCA GCA ATT TGT ATG GAC AAA TCG  
7381  
LEU THR TYR ILE VAL ALA LYS ASN ALA THR PHE ILE ALA GLY ILE ALA THR PRO ALA PHE TRP VAL ILE ASN  
TTG ACA TAC ATC GTT GGT GCG AAA AAT GCT ACC ATA GGT ACT CCC GCC TTT TGG GTT ATT AAT  
7441  
LYS ASP ASP ARG PRO VAL ALA ALA THR PHE THR TYR PRO VAL PHE VAL LYS PRO ALA ARG  
AAA GAT GAT AGG CCG GTG GCA GCT ACG TTT ACC TAT CCT GTT TTT TTT AAG CCG GCG CGT  
7501  
SER GLY SER SER PHE GLY VAL LYS LYS VAL ASN SER ALA ASP GLU LEU ASP TYR ALA ILE  
TCA GGC TCA TCC TTC GGT GTG AAA AAA GTC AAT AGC GCG GAC GAA TTG GAC TAC GCA ATT  
7561  
GLU SER ALA ARG GLN TYR ASP SER LYS ILE LEU ILE GLU GLN ALA VAL SER GLY CYS GLU  
GAA TCG GCA AGA CAA TAT GAC AGC AAA ATC TTA ATT GAG CAG GCT GTT TCG GGC TGT GAG  
7621  
VAL GLY CYS ALA VAL LEU GLY ASN SER ALA ALA LEU VAL VAL GLY GLU VAL ASP GLN ILE  
GTC GGT TGT GCG GTA TTG GGA AAC AGT GCC GCG TTA GTT GGT GGC GAG GTG GAC CAA ATC  
7681  
ARG LEU GLN TYR GLY ILE PHE ARG ILE HIS GLN GLU VAL GLU PRO GLU LYS GLY SER GLU  
AGG CTG CAG TAC GGA ATC TTT CGT ATT CAT CAG GAA GTC GAG CCG GAA AAA GGC TCT GAA  
7741  
ASN ALA VAL ILE THR VAL PRO ALA ASP LEU SER ALA GLU GLU ARG GLY ARG ILE GLN GLU  
AAC GCA GTT ATA ACC GTT CCC GCA GAC CTT TCA GCA GAG GAG CGA GGA CGG ATA CAG GAA  
7801  
THR ALA LYS LYS ILE TYR LYS ALA LEU GLY CYS ARG GLY LEU ALA ARG VAL ASP MET PHE  
ACG GCA AAA AAA ATA TAT AAA GCG CTC GGC TGT AGA GGT CTA GCC CGT GTG GAT ATG TTT

FIG. 8L

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7861  
LEU GLN ASP ASN GLY ARG ILE VAL LEU ASN GLU VAL ASN THR LEU PRO GLY PHE THR SER  
TTA CAA GAT AAC GGC CGC ATT GTA CTG AAC GAA GTC AAT ACT CTG CCC GGT TTC ACG TCA  
7921  
TYR SER ARG TYR PRO ARG MET MET ALA ALA ALA GLY ILE ALA LEU PRO GLU LEU ILE ASP  
TAC AGT CGT TAT CCC CGT ATG ATG GCT GCA GGT ATT GCA CTT CCC GAA CTG ATT GAC  
7981  
ARG LEU ILE VAL LEU ALA LEU LYS GLY  
CGC TTG ATC GTA TTA GCG TTA AAG GGG TGATAAGC ATG GAA ATA GGA TTT ACT TTT TTA GAT  
VanX MET GLU ILE GLY PHE THR PHE LEU ASP  
8043  
GLU ILE VAL HIS GLY VAL ARG TRP ASP ALA LYS TYR ALA THR TRP ASP ASN PHE THR GLY  
GAA ATA GTA CAC GGT GTT CGT TGG GAC GCT AAA TAT GCC ACT TGG GAT AAT TTC ACC GGA  
8103  
LYS PRO VAL ASP GLY TYR GLU VAL ASN ARG ILE VAL GLY THR TYR GLU LEU ALA GLU SER  
AAA CCG GTT GAC GGT TAT GAA GTA AAT CGC ATT GTA GGG ACA TAC GAG TTG GCT GAA TCG  
8163  
LEU LEU LYS ALA LYS GLU LEU ALA ALA THR GLN GLY TYR GLY LEU LEU TRP ASP GLY  
CTT TTG AAG GCA AAA GAA GAA CTG GCT GCT ACC CAA GGG TAC GGA TTG CTT CTA TGG GAC GGT  
8223  
TYR ARG PRO LYS ARG ALA VAL ASN CYS PHE MET GLN TRP ALA ALA GLN PRO GLU ASN ASN  
TAC CGT CCT AAG CGT GCT GTA AAC TGT TTT ATG CAA TGG GCT GCA CAG CCG GAA AAT AAC  
8283  
LEU THR LYS GLU SER TYR TYR PRO ASN ILE ASP ARG THR GLU MET ILE SER LYS GLY TYR  
CTG ACA AAG GAA AGT TAT TAT CCC AAT ATT GAC CGA ACT GAG ATG ATT TCA AAA GGA TAC  
8343  
VAL ALA SER LYS SER SER HIS SER ARG GLY SER ALA ILE ASP LEU THR LEU TYR ARG LEU  
GTG GCT TCA AAA TCA AGC CAT AGC CGC GGC AGT GCC ATT GAT CTT ACG CTT TAT CGA TTA  
8403  
ASP THR GLY GLU LEU VAL PRO MET GLY SER ARG PHE ASP PHE MET ASP GLU ARG SER HIS  
GAC ACG GGT GAG CTT GTA CCA ATG GGG AGC CGA TTT GAT TTT ATG GAT GAA CGC TCT CAT

FIG. 8M

8463 HIS ALA ALA ASN GLY ILE SER CYS ASN GLU ALA GLN ASN ARG ARG ARG ARG LEU ARG SER ILE  
 CAT GCG GCA NAT GGA ATA TCA TGC AAT GAA GCG CAA AAT CGC AGA CGT TTG CGC TCC ATC  
 8523 MET GLU ASN SER GLY PHE GLU ALA TYR SER LEU GLU TRP TRP HIS TYR VAL LEU ARG ASP  
 ATG GAA AAC AGT GGG TTT GAA GCA TAT AGC CTC GAA TGG TGG CAC TAT GTA TTA AGA GAC  
 8583 GLU PRO TYR PRO ASN SER TYR PHE ASP PHE PRO VAL LYS  
 GAA CCA TAC CCC AAT AGC TAT TTT GAT TTC CCC GTT AAA TAAA CTT TTA ACC GTT GCA  
 8641 CGG ACA AAC TAT ATA AGC TAA CTC TTT CGG CAG GAA ACC CGA CGT ATG TAA CTG GTT CTT  
 8701 AGG GAA TTT ATA TAT AGT AGA TAG TAT TGA AGA TGT AAG GCA GAG CGA TAT TGC GGT CAT  
 8761 TAT CTG CGT GCG CTG CCG CAA GAT AGC CTG ATA ATA AGA CTG ATC GCA TAG AGG GGT GGT  
 8821 ATT TCA CAC CGC CCA TTG TCA ACA GGC AGT TCA GCC TCG TTA AAT TCA GCA TGG GTA TCA  
 8881 CTT ATG AAA ATT CAT CTA CAT TGG TGA TAA TAG TAA ATC CAG TAG GGC GAA ATA ATT GAC  
 8941 TGT AAT TTA CGG GGC AAA ACG GCA CAA TCT CAA ACG AGA TTG TGC CGT TTA AGG GGA AGA  
 9001 TTC TAG AAA TAT TTC ATA CTT CCA ACT ATA TAG TTA AGG AGG AGA CTG AAA ATG AAG AAG  
 9061 LEU PHE PHE LEU LEU LEU LEU PHE LEU ILE TYR LEU GLY TYR ASP TYR VAL ASN GLU  
 TTG TTT TTT TTA TTG TTA TTG TTA TTC TTA ATA TAC TTA GGT TAT GAC TAC GTT AAT GAA

VanY

FIG. 8N

9121  
ALA LEU PHE SER GLN GLU LYS VAL GLU PHE GLN ASN TYR ASP GLN ASN PRO LYS GLU HIS  
GCA CTG TTT TCT CAG GAA AAA GTC GAA TTT CAA AAT TAT GAT CAA AAT CCC AAA GAA CAT  
9181  
LEU GLU ASN SER GLY THR SER GLU ASN THR GLN GLU LYS THR ILE THR GLU GLU GLN VAL  
ITA GAA AAT AGT GGG ACT TCT GAA AAT ACC CAA GAG AAA ACA ATT ACA GAA GAA CAG GTT  
9241  
TYR GLN GLY ASN LEU LEU LEU ILE ASN SER LYS TYR PRO VAL ARG GLN GLU SER VAL LYS  
TAT CAA GGA AAT CTG CTA TTA ATC AAT AGT AAA TAT CCT GTT CGC CAA GAA AGT GTG AAG  
9301  
SER ASP ILE VAL ASN LEU SER LYS HIS ASP GLU LEU ILE ASN GLY TYR GLY LEU LEU ASP  
TCA GAT ATC GTG AAT TTA TCT AAA CAT GAC GAA TTA ATA AAT GGA TAC GGG TTG CTT GAT  
9361  
SER ASN ILE TYR MET SER LYS GLU ILE ALA GLN LYS PHE SER GLU MET VAL ASN ASP ALA  
AGT AAT ATT TAT ATG TCA AAA GAA ATA GCA CAA AAA TTT TCA GAG ATG GTC AAT GAT GCT  
9421  
VAL LYS GLY GLY VAL SER HIS PHE ILE ILE ASN SER GLY TYR ARG ASP PHE ASP GLU GLN  
GTA AAG GGT GGC GTT AGT CAT TTT ATT ATT AAT AGT GGC TAT CGA GAC TTT GAT GAG CAA  
9481  
SER VAL LEU TYR GLN GLU MET GLY ALA GLU TYR ALA LEU PRO ALA GLY TYR SER GLU HIS  
AGT GTG CTT TAC CAA GAA ATG GGG GCT GAG TAT GCC TTA CCA GCA GGT TAT AGT GAG CAT  
9541  
ASN SER GLY LEU SER LEU ASP VAL GLY SER SER LEU THR LYS MET GLU ARG ALA PRO GLU  
AAT TCA GGT TTA TCA CTA GAT GTA GGA TCA AGC TTG ACG AAA ATG GAA CGA GCC CCT GAA  
9601  
GLY LYS TRP ILE GLU GLU ASN ALA TRP LYS TYR GLY PHE ILE LEU ARG TYR PRO GLU ASP  
GGA AAG TGG ATA GAA GAA AAT GCT TGG AAA TAC GGG TTC ATT TTA CGT TAT CCA GAG GAC  
9661  
LYS THR GLU LEU THR GLY ILE GLN TYR GLU PRO TRP HIS ILE ARG TYR VAL GLY LEU PRO  
AAA ACA GAG TTA ACA GGA ATT CAA TAT GAA CCA TGG CAT ATT CGC TAT GTT GGT TTA CCA  
9721

FIG. 80

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HIS SER ALA ILE MET LYS GLU LYS ASN PHE VAL LEU GLU GLU TYR MET ASP TYR LEU LYS  
CAT AGT GCG ATT ATG AAA GAA AAG AAT TTC GTT CTC GAG GAA TAT ATG GAT TAC CTA AAA  
9781  
GLU GLU LYS THR ILE SER VAL SER VAL ASN GLY GLU LYS TYR GLU ILE PHE TYR TYR PRO  
GAA GAA AAA ACC ATT TCT GTT GTT AAT GGT GAA AAA TAT GAG ATC TTT TAT TAT CCT  
9841  
VAL THR LYS ASN THR THR ILE HIS VAL PRO THR ASN LEU ARG TYR GLU ILE SER GLY ASN  
GTT ACT AAA AAT ACC ACC ATT CAT GTG CCG ACT AAT CTT CGT TAT GAG ATA TCA GGA AAC  
9901  
ASN ILE ASP GLY VAL ILE VAL THR VAL PHE PRO GLY SER THR HIS THR ASN SER ARG ARG  
AAT ATA GAC GGT GTA ATT GTG ACA GTG TTT CCC GGA TCA ACA CAT ACT AAT TCA AGG AGG  
9961  
TAA GGA TGG CGG AAT GAA ACC AAC GAA ATT AAT GAA CAG CAT TAT TGT ACT AGC ACT TTT  
10021  
GGG GTA ACG TTA GCT TTT TAA TTT AAA ACC CAC GTT AAC TAG GAC ATT GCT ATA CTA ATG  
  
10081  
ATA CAA CTT AAA CAA AAG AATTAGAGG AAA TTA TA TTT GGA AAA ATA TTA TCT AGA GGA TTG  
10143  
LEU ALA LEU TYR LEU VAL THR LEU ILE TRP LEU VAL LEU PHE LYS LEU GLN TYR ASN ILE  
CTA GCT TTA TAT TTA GTG ACA CTA ATC TGG TTA GTG TTA TTC AAA TTA CAA TAC AAT ATT  
10203  
LEU SER VAL PHE ASN TYR HIS GLN ARG SER LEU ASN LEU THR PRO PHE THR ALA THR GLY  
TTA TCA GTA TTT AAT TAT CAT CAA AGA AGT CTT AAC TTG ACT CCA TTT ACT GCT ACT GGG  
10263  
ASN PHE ARG GLU MET ILE ASP ASN VAL ILE ILE PHE ILE PRO PHE GLY LEU LEU ASN  
AAT TTC AGA GAG ATG ATA GAT AAT GTT ATA ATC TTT ATT CCA TTT GGC TTG CTT TTG AAT

FIG. 8P

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10323 VAL ASN PHE LYS GLU ILE GLY PHE LEU PRO LYS PHE ALA PHE VAL LEU VAL LEU SER LEU  
GTC AAT TTT AAA GAA ATC GGA TTT TTA CCT AAG TTT GCT TTT GTA CTG GTT TTA AGT CTT  
10383 THR PHE GLU ILE ILE GLN PHE ILE PHE ALA ILE GLY ALA THR ASP ILE THR ASP VAL ILE  
ACT TTT GAA ATA ATT CAA TTT ATC TTC GCT ATT GGA GCG ACA GAC ATA ACA GAT GTA ATT  
10443 THR ASN THR VAL GLY GLY PHE LEU GLY LEU LYS LEU TYR GLY LEU SER ASN LYS HIS MET  
ACA AAT ACT GTT GGA GGC TTT CTT GGA CTG AAA TTA TAT GGT TTA AGC AAT AAG CAT ATG  
10503 ASN GLN LYS LYS LEU ASP ARG VAL ILE ILE PHE VAL GLY ILE LEU LEU VAL LEU LEU  
AAT CAA AAA AAA TTA GAC AGA GTT ATT ATT TTT GTA GGT ATA CTT TTG CTC GTA TTA TTG  
10563 LEU VAL TYR ARG THR HIS LEU ARG ILE ASN TYR VAL  
CTC GTT TAC CGT ACC CAT TTA AGA ATA AAT TAC GTG TAAG ATG TCT AAA TCA AGC AAT  
10621 CTG ATC TTT CAT ACA CAT AAA GAT ATT GAA TGA ATT GGA TTA GAT GGA AAA CGG GAT GTG  
10681 GGG AAA CTC GCC CGT AGG TGT GAA GTG AGG GGA AAA CCG GTG ATA AAG TAA AAA GCT TAC  
10741 CTA ACA CTA TAG TAA CAA AGA AAG CCC AAT TAT CAA TTT TAG TGC TGA GGA ATT GGT CTC  
10801 TTT AAT AAA TTT CCT TAA CGT TGT AAA TCC GCA TTT TCC TGA CGG TAC CCC

FIG. 8Q

USSN 09/357,375

Ib brin(-)

1  
CAA AAT ATC ACC TCA TTT TTG AGA CAA GTC TTA TGA GAC GCT CTT AAC TAT GAT TTT ATC  
61  
AGT CTA CTA CAT TTG TAT CAA TAG AGT ACA CTC TAT TGA TAT ATA ATT GAA CTA ATA AAT

121  
Transposase  
TGA AAA TAC AGA AAT GGA ATGATACTG AA ATG AAA ATT GCG AGA GGT AGA GAA TTG CTT ACA  
182  
PRO GLU GLN ARG GLN ALA PHE MET GLN ILE PRO GLU ASP GLU TRP ILE LEU GLY THR TYR  
CCG GAA CAG AGA CAG GCT TTT ATG CAA ATC CCT GAA GAT GAA TGG ATA CTG GGG ACC TAC  
242  
PHE THR PHE SER LYS ARG ASP LEU GLU ILE VAL ASN LYS ARG ARG GLU GLU ASN ARG  
TTC ACT TTT TCC AAA CCG GAT TTA GAA ATA GTT AAT AAG CGA AGG AGG GAA AAC CGT  
302  
LEU GLY PHE ALA VAL GLN LEU ALA VAL LEU ARG TYR PRO GLY TRP PRO TYR THR HIS ILE  
TTA GGA TTT GCT GTT CAA TTA GCT GTT CTT CGG TAT CCC GGT TGG CCA TAC ACT CAT ATC  
362  
LYS SER ILE PRO ASP SER VAL ILE GLN TYR ILE SER LYS GLN ILE GLY VAL SER PRO SER  
AAA AGC ATC CCA GAT TCG GTC ATA CAA TAT ATA TCG AAA CAG ATT GGT GTT AGT CCA TCC  
422  
SER LEU ASP HIS TYR PRO GLN ARG GLU ASN THR LEU TRP ASP HIS LEU LYS GLU ILE ARG  
TCG CTT GAT CAT TAT CCT CAA AGG GAA AAT ACA CTT TGG GAT CAT TTG AAA GAA ATT CGA

FIG. 8R



USSN 09/357,375

482 SER GLU TYR ASP PHE VAL THR PHE THR LEU SER GLU TYR ARG MET THR PHE LYS TYR LEU  
AGT GAA TAC GAC TTT GTA ACT TTT ACC CTG AGT GAA TAT CGA ATG ACA TTT AAG TAC CTT  
542  
HIS GLN LEU ALA LEU GLU ASN GLY ASP ALA ILE HIS LEU LEU HIS GLU CYS ILE ASP PHE  
CAT CAA TTA GCT TTG GAA AAT GGT GAT GCC ATT CAT CTA CTG CAT GAA TGC ATA GAT TTT  
602  
LEU ARG LYS ASN LYS ILE ILE LEU PRO ALA ILE THR THR LEU GLU ARG MET VAL TRP GLU  
CTA AGA AAA AAC AAA ATT ATA CTG CCT GCT ATC ACT ACA CTT GAA AGA ATG GTG TGG GAA  
662  
ALA ARG ALA MET ALA GLU LYS LYS LEU PHE ASN THR VAL SER LYS SER LEU THR ASN GLU  
GCA AGG GCA ATG GCT GAA AAG AAG CTA TTT AAT ACG GTT AGT AAA TCT CTA ACA AAT GAG  
722  
GLN LYS GLU LYS LEU GLU GLY ILE ILE THR SER GLN HIS PRO SER GLU SER ASN LYS THR  
CAA AAA GAA AAG CTT GAA GGG ATT ATT ACC TCG CAG CAT CCA TCC GAA TCC AAT AAA ACG  
782  
ILE LEU GLY TRP LEU LYS GLU PRO PRO GLY HIS PRO SER PRO GLU THR PHE LEU LYS ILE  
ATA TTG GGT TGG TTA AAA GAG CCA CCG GGT CAT CCT TCA CCC GAA ACT TTT CTA AAA ATA  
842  
ILE GLU ARG LEU GLU TYR ILE ARG GLY MET ASP LEU GLU THR VAL GLN ILE SER HIS LEU  
ATA GAA CGA CTC GAA TAC ATA CGA GGA ATG GAT TTA GAA ACA GTG CAA ATT AGT CAT TTG  
902  
HIS ARG ASN ARG LEU LEU GLN LEU SER ARG LEU GLY SER ARG TYR GLU PRO TYR ALA PHE  
CAC CGT AAC CGC CTG TTG CAG CTG TCT CGC TTA GGC TCA AGA TAC GAG CCG TAT GCA TTC  
962  
ARG ASP PHE GLN GLU ASN LYS ARG TYR SER ILE LEU THR THR ILE TYR LEU LEU GLN LEU THR  
CGT GAC TTT CAA GAA AAT AAA CGT TAT TCG ATA TTA ACC ATC TAT TTA TTA CAA CTT ACT  
1022  
GLN GLU LEU THR ASP LYS ALA PHE GLU ILE HIS ASP ARG GLN ILE LEU SER LEU LEU SER  
CAG GAG CTA ACG GAT AAA GCG TTT GAA ATT CAT GAT AGG CAA ATA CTT AGT TTG TTA TCA

FIG. 8S

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1082 LYS GLY ARG LYS ALA GLN GLU GLU ILE GLN LYS GLN ASN GLY LYS LYS LEU ASN GLU LYS  
AAA GGT CGT AAG GCT CAA GAG GAA ATC CAG AAA CAA AAC AAG CTA AAT GAG AAA  
1142 VAL ILE HIS PHE THR ASN ILE GLY GLN ALA LEU ILE LYS ALA ARG GLU GLU LYS LEU ASP  
GTT ATA CAC TTT ACG AAC ATC GGA CAA GCA TTA ATT AAA GCA AGA GAG GAA AAA TTA GAC  
1202 VAL PHE LYS VAL LEU GLU SER VAL ILE GLU TRP ASN THR PHE VAL SER SER VAL GLU GLU  
GTT TTT AAG GTT TTA GAA TCG GTT ATT GAA TGG AAT ACC TTT GTC TCT TCA GTA GAA GAG  
1262 ALA GLN GLU LEU ALA ARG PRO ALA ASP TYR ASP TYR LEU LEU LEU GLN LYS ARG PHE  
GCT CAG GAA CTT GCA CGT CCT GCC GAC TAT GAT TAT TTA GAC TTA CTG CAA AAA CCG TTT  
1322 TYR SER LEU ARG LYS TYR THR PRO THR LEU LEU ARG VAL LEU GLU PHE HIS SER THR LYS  
TAT TCA CTA AGA AAA TAT ACG CCA ACG CTA TTA AGA GTA TTT CAT TCT ACA AAG  
1382 ALA ASN GLU PRO LEU LEU GLN ALA VAL GLU ILE ILE ARG GLY MET ASN GLU SER GLY LYS  
GCA AAT GAG CCA CTT TTA CAA GCT GTT GAG ATT ATC CGA GGA ATG AAC GAA TCT GGA AAG  
1442 ARG LYS VAL PRO ASP SER PRO VAL ASP PHE ILE SER LYS ARG TRP LYS ARG HIS LEU  
CGA AAA GTG CCT GAT GAC TCA CCT GTG GAT TTT ATT TCA AAA CGA TGG AAA AGA CAT TTA  
1502 TYR GLU ASP ASP GLY THR THR ILE ASN ARG HIS TYR TYR GLU MET ALA VAL LEU THR GLU  
TAC GAG GAT GAT GGT ACA ACA ATT AAT CGT CAT TAC TAT GAA ATG GCT GTT TTA ACA GAA  
1562 LEU ARG GLU HIS VAL ARG ALA GLY ASP VAL SER ILE VAL GLY SER ARG GLN TYR ARG ASP  
CTT CGG GAG CAT GTT CGG GCA GGA GAT GTT TCC ATT GTT GGC AGC AGA CAA TAT AGG GAT

FIG. 8T

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1622 PHE GLU GLU TYR LEU PHE SER GLU ASP THR TRP ASN GLN SER LYS GLY ASN THR ARG LEU  
TTT GAG GAA TAT TTG TTT TCG GAA GAT ACA TGG AAT CAA TCG AAG GGG AAT ACG AGA TTA  
1682 SER VAL SER LEU SER PHE GLU ASP TYR ILE THR GLU ARG THR SER SER PHE ASN GLU ARG  
TCA GTT AGT TTA TCA TTC GAA GAT TAT ATA ACG GAG AGA ACC AGC AGC TTT AAT GAA AGG  
1742 LEU LYS TRP LEU ALA ALA ASN SER ASN LYS LEU ASP GLY VAL SER LEU GLU LYS GLY LYS  
TTA AAG TGG TTA GCT GCC AAT TCC AAT AAG TTA GAT GGG GTT TCT CTT GAA AAA GGA AAG  
1802 LEU SER LEU ALA ARG LEU GLU LYS ASP VAL PRO GLU GLU ALA LYS LYS PHE SER ALA SER  
CTA TCA CTT GCA CGC TTA GAA AAA GAT GTT CCA GAA GAA GCA AAA AAA TTT AGT GCA AGC  
1862 LEU TYR GLN MET LEU PRO ARG ILE LYS LEU THR ASP LEU LEU MET ASP VAL ALA HIS ILE  
CTT TAT CAG ATG CTA CCA AGA ATA AAA TTA ACT GAT TTA CTC ATG GAT GTG GCC CAT ATA  
1922 THR GLY PHE HIS GLU GLN PHE THR HIS ALA SER ASN ASN ARG LYS PRO ASP LYS GLU GLU  
ACA GGA TTT CAT GAG CAA TTC ACT CAT GCT TCC AAT AAT CCA AAA CCA GAT AAG GAA GAA  
1982 THR ILE ILE ILE MET ALA ALA LEU LEU GLY MET GLY MET ASN ILE GLY LEU SER LYS MET  
ACA ATC ATT ATC ATG ATG GCT GCC CTT TTA GGA ATG GGA ATG AAT ATT GGC TTG AGC AAG ATG  
2042 ALA GLU ALA THR PRO GLY LEU THR TYR LYS GLN LEU ALA ASN VAL SER GLN TRP ARG MET  
GCC GAA GCC ACA CCC GGA CTT ACA TAT AAG CAA CTA GCC AAT GTA TCT CAA TGG CGC ATG  
2102 TYR GLU ASP ALA MET ASN LYS ALA GLN ALA ILE LEU VAL ASN PHE HIS HIS LYS LEU GLN  
TAT GAA GAT GCC ATG AAT AAA GCC CAA GCC ATA TTA GTA AAC TTT CAT CAT AAA TTA CAA  
2162 LEU PRO PHE TYR TRP GLY ASP GLY THR THR SER SER ASP GLY MET ARG MET GLN LEU  
TTG CCT TTC TAT TGG GGC GAC GGT ACA ACA TCT TCG TCA GAT GGT ATG AGA ATG CAG CTA

FIG. 8U

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2222 GLY VAL SER SER LEU HIS ALA ASP ALA ASN PRO HIS TYR GLY THR GLY LYS GLY ALA THR  
GGT GTT TCA TCA CTA CAT GCA GAT GCA AAT CCA CAT TAT GGA ACT GGA AAA GGA GCC ACC  
2282 ILE TYR ARG PHE THR SER ASP GLN PHE SER SER TYR TYR THR LYS ILE ILE HIS THR ASN  
ATC TAC CGA TTT ACA AGT GAT CAA TTC TCT TCT TAC TAC ACA AAG ATT ATT CAT ACT AAT  
2342 SER ARG ASP ALA ILE HIS VAL LEU ASP GLY LEU LEU HIS HIS GLU THR ASP LEU ASN ILE  
TCA AGA GAT GCG ATT CAT GTT TTG GAT GGT TTG TTA CAT CAT CAT GAG ACG GAT CTA AAC ATA  
2402 GLU GLU HIS TYR THR ASP THR ALA GLY TYR THR ASP GLN ILE PHE GLY LEU THR HIS LEU  
GAG GAA CAT TAT ACA GAC ACT GCC GGT TAC ACT GAC CAA ATA TTC GGA CTG ACT CAT TTA  
2462 LEU GLY PHE LYS PHE ALA PRO ARG ILE ARG ASP LEU SER ASP SER LYS LEU PHE THR ILE  
TTA GGA TTT AAA TTT GCC CCA AGA ATA AGG GAT TTA TCG GAC TCA AAA TTA TTT ACG ATA  
2522 ASP LYS ALA SER GLU TYR PRO LYS LEU GLU ALA ILE LEU ARG GLY GLN ILE ASN THR LYS  
GAT AAA GCA AGT GAG TAT CCA AAA CTA GAA GCC ATT TTA CGT GGA CAA ATA AAT ACA AAG  
2582 VAL ILE LYS GLU ASN TYR GLU ASP VAL LEU ARG LEU ALA HIS SER ILE ARG GLU GLY THR  
GTC ATT AAA GAA AAT TAT GAG GAT GTT TTG CGA TTA GCT CAT TCT ATA AGG GAG GGA ACA  
2642 AGT TTC AGC ATC CCT TAT TAT GGG GAA GCT AGG TTC CTA TTC AAG ACA AAA CAG CTT AGC  
VAL SER ALA SER LEU ILE MET GLY LYS LEU GLY SER TYR SER ARG GLN ASN SER LEU ALA  
GTT TCA GCA TCC CTT ATT ATG GGG AAG CTA GGT TCC TAT TCA AGA CAA AAC AGC TTA GCT  
2702 THR ALA LEU ARG GLU MET GLY ARG ILE GLU LYS THR ILE PHE ILE LEU ASN TYR ILE SER  
ACA GCC TTA CGT GAG ATG GGC CGA ATA GAA AAA ACG ATC TTT ATT TTG AAT TAT ATA TCG

FIG. 8V

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2762 ASP GLU SER LEU ARG ARG LYS ILE GLN ARG GLY LEU ASN LYS GLY GLU ALA MET ASN GLY  
GAT GAA TCA TTA AGA AGA AAA ATA CAA AGA GGA TTG AAT AAA GGA GAA GCC ATG AAT GGA  
2822 LEU ALA ARG ALA ILE PHE PHE GLY LYS GLN GLY GLU LEU ARG GLU ARG THR ILE GLN HIS  
TTG GCA AGA GCT ATT TTC TTC GGA AAA CAA GGT GAG CTT AGA GAA CGC ACC ATA CAG CAT  
2882 GLN LEU GLN ARG ALA SER ALA LEU ASN ILE ILE ILE ASN ALA ILE SER ILE TRP ASN THR  
CAA TTG CAA AGA GCC AGT GCT TTA AAC ATA ATT ATC AAT GCT ATA AGT ATT TGG AAT ACT  
2942 TCT CCA CCT AAC AGC AGT TGA ATA TAA AAA ACG GAC AGG TAG CTT TAA TGA AGA TTT  
LEU HIS LEU THR THR ALA VAL GLU TYR LYS LYS ARG THR GLY SER PHE ASN GLU ASP LEU  
CTC CAC CTA ACA ACA GCA GTT GAA TAT AAA AAA CGG ACA GGT AGC TTT AAT GAA GAT TTG  
3002 LEU HIS HIS MET SER PRO LEU GLY TRP GLU HIS ILE ASN LEU LEU GLY GLU TYR HIS PHE  
TTA CAC CAT ATG TCG CCC TTA GGT TGG GAA CAT ATT AAT TTA CTA GGA GAA TAC CAT TTT  
3062 ASN SER GLU LYS VAL SER LEU ASN SER LEU ARG PRO LEU LYS LEU SER  
AAC TCA GAG AAA GTA GTC TCA TTA AAT TCT TTA AGA CCA CTA AAA CTT TCT TAA CGT TG  
3121 TTA AAA ACG AGG GAT TCG TCA GGA AAA TAG GCT TAG CGT TGT AAA TCC GCA TTT TCC TGA  
3181 CGC TAC CCC

FIG.8W

SacI  
GAGCTCTTCCTTCAACGCACTTCTGTACCAAGAGTTGTTGC 42  
  
CATTGATCACTAACAAATAGCTTCCCCCTGCTTCTTCAAGCCCTTGTGCATAAAATCGTTAGATTTTCA 111  
  
TCATAAAATACGAGAAAGACAAACAGGAAGACCGCAATTTTCTTTTCTTCTTAGGTACACTGAATG 180  
  
RBS M K K I A V L F G G  
TAACCTTAAAGAAAAGGAAAGGAAATGATGAAAAAATGCCGTTTATTGGAGGG 244  
  
N S P E Y S V S L T S A A S V I Q A I D  
AATTCTCCAGAATACTCAGTGTCACTAACCCTCAGCAGCAAGTGTGATCCCAAGCTATTGAC 304  
  
P L K Y E V M T I G I A P T M D W Y W Y  
CCGCTGAAATATGAAGTAATGACCATTGGCATCGCACCAACAATGGATTGGTATTGGTAT 364  
  
Q G N L A N V R N D T W L E D H K N C H  
CAAGGAAACCTCGCGAATGTTCCGAATGATACTTGGCTAGAGATCACAATAAAGTGTAC 424  
  
Q L T F S S Q G F I L G E K R I V P D V  
CAGCTGACTTTTCTAGCCCAAGGATTTATATATTAGGAGAAAACGAATCGTCCCTGATGTC 484  
  
L F P V L H G K Y G E D G C I Q G L L E  
CTCTTCCAGTCTTGCAATGGGAAGTATGGCGAGGATGGCTGTATCCCAAGGACTGCTTGAA 544  
  
L M N L P Y V G C H V A A S A L C M N K  
CTAATGAACCTGCCTTATGTTGGTTGCCATGTGCTGCTCGCTCCGCATTATGTATGAACAA 604

FIG. 9A

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W L L H Q L A D T M G I A S A P T L L L  
TGGCTCTTGCACTTGCTGATACCATGGGAATCGCTAGTCTCCCACTTTGCTTTA 664  
S R Y E N D P A T I D R F I Q D H G F P  
TCCCGCTATGAAAACGATCCTGCCACAATCGATCGTTTATTCAAGACCATGGATTCCCG 724  
I F I K P N E A G S S K G I T K V T D K  
ATCTTTATCAAGCCGAATGAAGCCGGTTCTTCAAAAGGGATCACAAAAGTAAGTACAA 784  
T A L Q S A L T T A F A Y G S T V L I Q  
ACAGCGCTCCAATCTGCATTAAACGACTGCTTTTGCTTACGGTTCTACTGTGTGATCCAA 844  
K A I A G I E I G C G I L G N E Q L T I  
AAGCGGATAGCGGTATTGAAATTGGCTGCGGCATCTTAGGAAATGAGCAATTGACGATT 904  
G A C D A I S L V D G F F D F E E K Y Q  
GGTGCTGTGATGCGGATTCTCTTGTCGACGGTTTTTTGATTTTGAAGAGAAATACCAA 964  
L I S A T I T V P A P L P L A L E S Q I  
TTAATCAGCGCCACGATCAGTGTCCACGACCATTTGCCCTCTCGCGCTTGAATCACAGATC 1024  
K E Q A Q L L Y R N L G L T G L A R I D  
AAGGAGCAGGCACAGCTGCTTTATCGAAACTTGGGATTGACGGGTCTGGCTCGAATCGAT 1084  
F F V T N Q G A I Y L N E I N T M P G F  
TTTTTCGTCACCAATCAAGGAGCGGATTATTATAACGAAATCAACACCATGCCGGGATT 1144

FIG. 9B

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T G H S R Y P A M A E V G L S Y E I L  
ACTGGGCACTCCGGCTACCCAGCTATGATGGCGGGAAGTCGGGTTATCCTACGAAATATTA 1204

V E Q L E A L A E E D K R \*  
GTAGAGCAATTGACTTGCACCTGGCAGAGGAGGACAAACGATGAACACATTACAATTGATCAATA 1267

AAAACCATCCATTGAAAAAATCAAGAGCCCCCGCACTTAGTGCTAGCTCCTTTTAGCGATCACGATG 1336

TTTACCTGCAG  
PstI 1347

FIG. 9C



<--1-->

VanC	VLFPVLHGKY	GEDGCIQGLL	ELMNLPVYGC	HVAASALCMN	KWLLHQLADT	MGIASAPTL	LSRYEND---	PATIDRFIQD	HGFIFIKPN	EAGSSKGITK
VaN	VAFSALHGKS	GEDGSIQGLF	ELSGIPVGC	DIOSSAICMD	KSLTYIVAKN	AGIATPAFW	INKDDRP---	-----VAAT	FTYPVFVKPA	RSGSFGVKK
Od1A	VIFPIVHGT	GEDGSLQGML	RVANLPFVGS	DVLASAACMD	KDVTKRLLRD	AGLINIAPFIT	LTRANRHNIS	FAE---VESK	LGLPLFKPA	NQSSSVGVSK
Od1B	--FIALHGRG	GEDGTLQGML	ELMGILPYTGS	GVMASALSMD	KLRSKILLWQG	AGLPVAPWVA	LTRAIEFEKGL	SOKQLAEISA	LGLPVIWKPS	RESSVGMKS
	I CII	IIUCCIGCC	CI IC C II CI I	C	IC	CCC			ICCCII	III IC I

domaine 2

VTDKTA LQSA LTTAFAYGST VLQKAIAGI EIGGGILGNE -QLTIGACDA ISLVGDFDFD EEKYQLIS-- --ATTVPAP LPLAESQIK EQAQLLYRNL  
 VNSADELDYA IESARQYDSK ILIEDAVSGC EVGCAVLGNS AALVUGEVDQ IRLQYGIFRI HQEVEPEKGS ENAVITVPAD LSAEERGRIO ETAKKIYKAL  
 VTSEEQYATA VALAFEFDHK VIVEGGIKGR ETECAVLGND NP-----QAST CGEILVTSDF YAYDTKYIDE DGAKVWVPAA IAPETNDKIR ATAVQAYQTL  
 VWAENALQDA LRLAFQHDDEE VLIEKWLSGP EFTVAILGEE IL-----P SIRIQPSGTF YDYEAKYLSO LEASQEANLQ ALVLKAWTTL  
 I L C I CCC CC I IC CCII

VanC  
 VanA  
 VanB  
 Ood1A  
 Ood1B

domaine 3

<--2-->

VanC	GLTGLARIDF	FVTNQGA <sup>1</sup> IYL	NEINTMPGFT	GHSRYPAMMA	EVGLSYEILV	EQLIALAEED	KR
VanA	GCRGLARVDM	FLOONGRIVL	NEVNTLPGFT	SYSRYPRMMA	AAGIALPELI	DRLIVLALKG	
Ood1A	GCAGMARVDV	FLTPENEVVI	NEINTLPGFT	NISWPKLWQ	ASGLGYTDLI	TRLIELALER	HAANNALKTT M
Ood1B	GCKGWGRIDV	MLDSDGGQFYI	LEANTSPGMT	SHSLVPMAAR	QAQMFSQVLV	VRILELAD	
	<u>I I CIGIC CC</u>	<u>C C I I U U C I</u>	<u>I I</u>	<u>I C</u>	<u>I C</u>	<u>CC II</u>	

domaine 4

**FIG. 10**

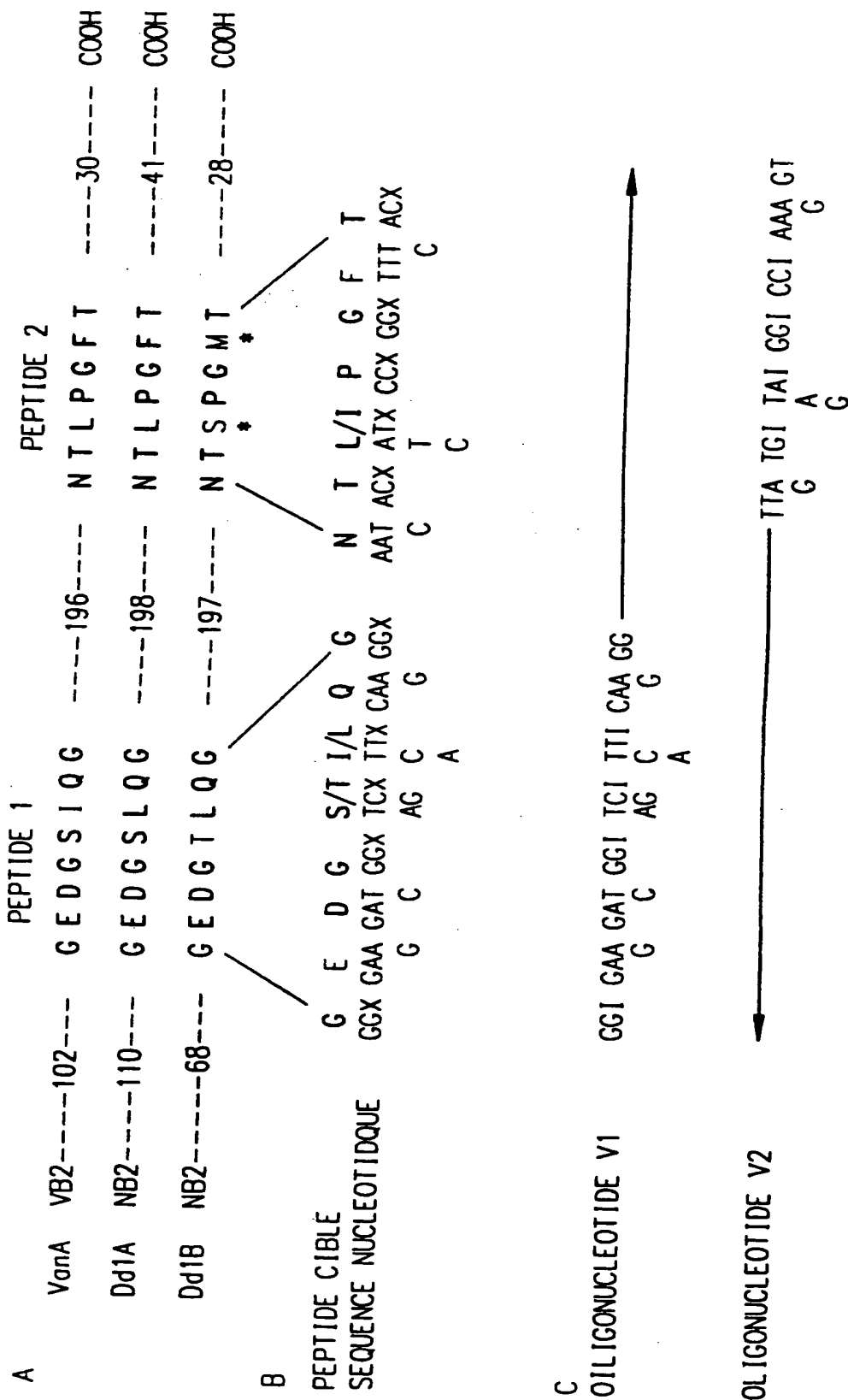


FIG. 11

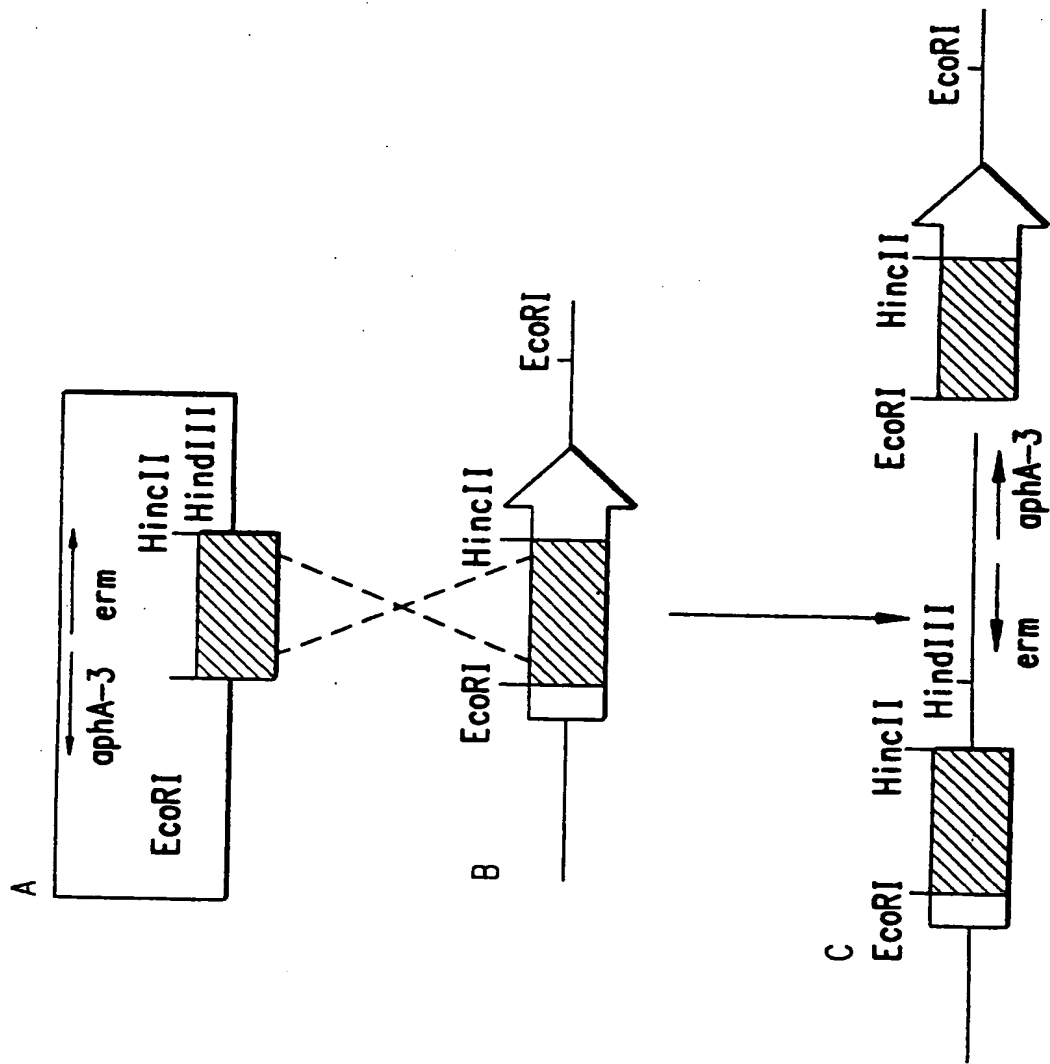
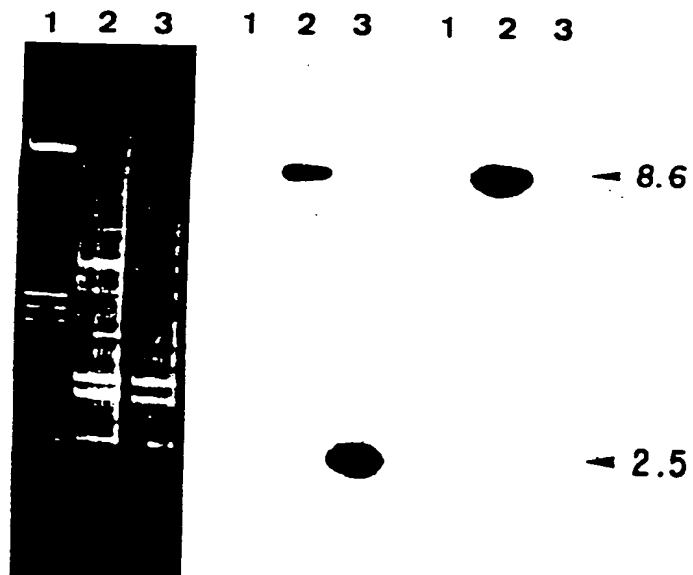


FIG.12



**FIG. 13**

**FIG. 14**

**FIG. 15**